The Chemical Age

A Weekly Journal Devoted to Industrial and Engineering Chemistry

VOL. XIII. No. 316 JULY 4, 1925 Prepaid Annual Subscription: United Kingdom, £1.1.0; Abroad, £1.6.0.

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NOTICES:—All communications relating to editorial matter should be addressed to the Editor, who will be pleased to consider articles or contributions dealing with modern chemical developments or suggestions bearing upon the advancement of the chemical industry in this country. Communications relating to advertisements or general matters should be addressed to the Manager.

The prepaid subscription to THE CHEMICAL AGE *is 21s. per annum for the United Kingdom, and 26s. abroad. Cheques, Money Orders and Postal Orders should be made payable to Benn Brothers, Ltd.*

Editorial and General Offices—8, Bouverie St., London, E.C.4.
Telegrams: "Allangas, Fleet, London." Telephone: City 9852 (6 lines).

INDEX TO VOLUME XII.

With this issue is published the Index to Volume XII. of THE CHEMICAL AGE, *covering the period January—June, 1925.*

The Treatment of Effluents

FOR some four years now the Chief Inspector under the Alkali Acts, Dr. T. Lewis Bailey, has been endeavouring to make the path of the sulphate of ammonia producer less thorny by concentrating his research staff on the problem of effluent disposal. There is no doubt that gasworks and other by-product ammonia producers are beginning to find official attention far more alert than it has been in the past, the difficulty probably being rendered more acute by the remodelling of sewage treatment systems which is now in hand. In reviewing the whole question of effluent disposal it is difficult to avoid making comparisons, and here again it is possible to find another factor which is greatly to the advantage of synthetic manufacturers who have no such things to worry about. That the synthetic producer commences his operations with uncombined ammonia instead of with a liquor which is particularly complex in composition is an advantage which must in the long run influence the price at which he is able to sell his sulphate. Although the operations of effluent treatment, filter-pressing, etc., may not involve any large expenditure, they are an item that cannot be neglected when the market begins to get into such a condition that even shillings count. If, too, public authorities generally are going to become more meticulous in their demands, then it may be necessary for many of the smaller producers to elaborate their present arrangements for disposal by the introduction of dephenolating plant.

Removal of Phenols

As the matter stands at present, it would appear that the "Hornsey Process" for the removal of phenols from sulphate waste liquors has proved itself quite reliable over a period of three years, but there remains the problem of thiocyanates and thiosulphates, for the removal of which no practical method seems yet to have been found. These constituents are undoubtedly oxidation products, and the quantity in which they are present is obviously dependent upon the degree of exposure to oxygen to which they have been subjected during the production, collection, and storage of the ammoniacal liquor. Effective treatment must, therefore, be applied at the source of the trouble, and Dr. Bailey urges that every precaution should be taken in the early stages of liquor production to avoid contact with air. On the other hand, it has been urged by another authority that a dephenolating process working in conjunction with bacterial beds (which would then be largely confined to the treatment of the thiocyanate and thiosulphate contents of the effluent liquor) would undoubtedly constitute a highly effective process calculated to give a tolerably innocuous spent liquor. Here again, however, the question of the economics of the combined system would have to be given very careful study, for the revenue derived from the ammonia of coal does not, at present-day prices of sulphate of ammonia, leave much in the way of a margin for the multiplication of subsidiary processes.

Whatever may ultimately emerge from the amount of attention that is now being given to this matter of effluents, it is at least gratifying to find that Dr. Bailey, who, as the official custodian of the public welfare, might well be justified in adopting a truculent attitude, appreciates the obstacles which lie in the way of obtaining entirely innocuous effluents, and he is continually doing all that is possible to assist manufacturers with their own problems. This is an attitude of the official mind that is encountered too infrequently, and co-operation of the sort is far more likely to produce the desired results than is the rather superior aloofness that still survives in some official quarters.

Colour Users and Dyestuff Problems

THE address of Mr. H. Sutcliffe Smith, at the annual meeting of the Colour Users' Association on Tuesday, taken in conjunction with the Council's annual report published last week, constitutes a serviceable review, at once comprehensive and analytical, of the main problems of the dyestuffs industry. It is true that the situation is surveyed primarily from the standpoint of the user, who naturally desires to have the widest possible range of colours, at the lowest possible price, with the most convenient facilities for obtaining supplies. But the survey takes account of features far more fundamental than these, such as the need of attaining full equality with foreign producers and therefore securing independence of protective legislation, and in particular of judging progress, not merely by the number of the commoner dyes we make, but by the number and the importance of the dyes for which we have still to depend on foreign makers. The colour users' attitude seems to us commendably loyal. They think they are being charged too much, and that the sacrifices admittedly necessary for the building up of a national dyestuffs industry fall on them in an unfair proportion; but they frankly admit the necessity of the licensing and other restrictions under which they work, and are content to accept them for some years yet, if all the time progress is steadily being made towards the end for which the Dyestuffs Act was passed.

Progress there has been of a kind and degree which scarcely anyone a few years ago would have dared to predict. Mr. Sutcliffe Smith, however, rather warns us against accepting percentages and similar tests at their face value without inquiry. There is, for example, the statement that to-day we make 80 per cent. of our dyestuff requirements and import only 20 per cent.—an almost exact reversal of the pre-war position. If, however, the 80 per cent. represents the commoner and more easily produced dyes, and the 20 per cent. the rarer, more costly, and more difficult dyes one sees at once how fallacious such a comparison might become. It is not suggested that it is a fallacy in this sense; what Mr. Smith does suggest is that the value of the dyes we still have to import instead of making them ourselves—dyes that are clearly essential or no license to import them would be granted—represents a surprisingly large sum. On the basis of three times pre-war prices, he estimates that our total consumption of colour to-day should not exceed 4½ million pounds, of which one-third is being paid to foreign makers for one-fifth of the consumption. Further, he claims quite frankly that the number of dyestuffs not manufactured in this country is far too large after a period of four years' protection, and he indicates this as a problem of the first importance. It may well be that the ground represented by the 20 per cent. we still have to import will prove relatively far more difficult than that already covered. That the dyestuffs industry is already capable of brilliant original work is conclusively shown by the recent successes of Scottish Dyes, Ltd., and that one example should serve as a stimulus to other firms.

There are many other points in Mr. Sutcliffe Smith's address, not the least notable being his endorsement of Sir Max Muspratt's recent plea for closer co-operation between the dyemakers and the heavy chemical manufacturers. We have drawn attention to his criticisms because we regard them as good and as sincerely constructive. They are not querulous complaints about administration merely masking a thorough dislike of the Dyestuffs Act and a desire to see it repealed, irrespective of its effect on an essential home industry. The users on the contrary have loyally accepted the aims and principles of the Act and have co-operated in securing its smooth and equitable administration. But all the time they are steadily keeping their eye on the central purpose of the Act, which was to enable a young industry to attain a vigorous self-dependence and supply a natural need and not to serve as an artificial substitute for intrinsic efficiency.

Oil from Coal

ATTENTION has been drawn to the important statement made by Sir John Cadman at the Institution of Mining Engineers at Cardiff as to the impossibility of separating oil from coal as the two basic fuels from which heat and energy are derived. "I have always held, and hold as firmly as ever, that coal will ultimately take its place with oil as a fuel, almost equally mobile and flexible, and recent experiments would seem to indicate that this expectation is already in process of realisation. I have never regarded oil as a rival of coal, but rather as an ally and associate, and I look forward to the time when they will be to a large extent interchangeable, though petroleum will always maintain a premier place in certain applications for which it is especially suited." The idea that the Patart process for the production of synthetic methyl alcohol may mean a new starting-point in the liquid fuel field explains the great interest which it is attracting from American fuel technologists. Sir John Cadman's views are interesting as showing the trend, as well as the diversity, of technical opinion in this country.

The situation in the oil industry at the present time is certainly intriguing, and although the course of prices in the immediate future is extremely difficult to forecast it will be surprising if an all-round advance is very long delayed. America, of course, always looms large in the world position, and there seems little doubt that the total output of the United States will undergo comparatively heavy reduction during the rest of the year. One hears persistent rumours of shortages which are likely to occur during the next few months, particularly as the consumption of petrol has increased to such an extent that it has surprised the industry. It has been pointed out that during the first three months of this year the increase in consumption was 28·5 per cent., while in April an advance of 35 per cent. was shown over the previous month. At the end of May it had further advanced by 40 per cent., as against an expansion of some 20 per cent. which the trade was expecting. The fact is emphasised that the peak of consumption occurs in the months of July and August, so that unless some contingency, such as phenomenally bad weather, intervenes, stocks will be depleted to such an extent that a rise in price in both crude oil and petrol is almost inevitable. The situation from the point of view of the large industrial consumer of such fractions as fuel oil and gas oil is

unusually perplexing, and in spite of the uncertainty which prevails we feel that buyers will probably be well advised to replenish their tanks without delay.

Chemical Industry Finance

THE balance sheet of the Society of Chemical Industry for the year ended December 31 last shows that a very strict oversight has been kept on expenditure and every opportunity taken of effecting economies. There is an adverse balance on the year of £725, but this really represents an immense improvement on the previous year, when a nominal profit balance of £387 was shown as the result of selling stock to the amount of £5,401. The members' annual subscriptions again show a small decline, but, in consequence of considerable additions to the membership recently, the figure to-day is probably more favourable. The income from the official journal (advertisements and subscriptions) is lower, and the revenue from the review *Chemistry and Review* is shown as £359.

On the expenditure side some interesting changes (all in the direction of economy) may be noted. On the official journal, the sum of £3,319 (representing the previous year's editorial salaries and expenses and fees to abstractors) has been reduced to £121. The explanation appears to be that these items are now covered by the sum of £2,048 17s. 4d., the Society's joint contribution to the Bureau of Chemical Abstracts. Advertisement department expenses are down, but publishing costs (in spite of the reduced cost of paper) are up. The most drastic reductions are in connection with *Chemistry and Industry*, the cost of which is £2,244, against £6,865 in the previous year. Editorial salaries and expenses are slightly higher and contributors' fees slightly lower, but the cost of publishing is down from £4,137 to £415, and that of paper from £775 to £88. Many a publishing firm would pay something substantial for the formula for such a reduction. In spite of financial stringency the Society has been able to make increased grants to sectional expenses and other objects. It is clear that since the last annual meeting finance has been very carefully investigated and watched, and the present position is really much better than the figures at first suggest. The key to improvement is clearly increase of membership, and that for some time has been receiving special attention.

How Trade is Won—or Lost

OUR readers may remember that, following upon an article by Mr. Rex Furness on "Some New Uses of Silicate of Soda," we published a letter from Mr. B. J. Eaton, Agricultural Chemist to the Straits Settlements and Federated Malay States, inquiring for the names of manufacturers of sodium silicate and indicating important uses for it in the rubber industry. Mr. Eaton now writes us from Kuala Lumpur, May 28: "I have the honour to express my thanks for your courtesy in dealing with my inquiry for sodium silicate and for publishing my letter. I have since received much descriptive literature and a large number of samples of various grades of this material from a number of manufacturers, and I find that Messrs. Brunner, Mond and Co.'s agents in Singapore also stock this chemical." This, as we pointed out at the time, is an example of the unexplored markets for British chemical products which must exist in many parts of the world, and of the difficulty which overseas buyers often experience in getting in touch with British producers. "We do not sell," as Sir Alfred Mond said recently; "we expect other people to buy." The amount of good business lost simply by the producer's neglect to put his goods on the market would probably, if it could be accurately tabled, represent a rather surprising figure.

Another Chemical Anniversary

Two years ago the United Alkali Company celebrated its centenary and dispelled the not unnatural idea that the chemical industry was among the younger trades of the country. A little later Messrs. Brunner, Mond and Co. kept its fiftieth anniversary, and gave further witness of the remarkable development which has taken place in applied science during the last hundred years. This year marks another step in that progress, when the Mond Nickel Company celebrates the activities of a quarter of a century since its foundation, and a commemorative dinner will be held in London on July 9. Such an anniversary is an occasion for reflection on the development of a great industry. The United Alkali Co. has been associated with the family of its founder, James Muspratt, since 1823, and may well be proud of such a record, and a similar tradition is also the basis of the concerns established by Dr. Ludwig Mond. A family succession in the political sphere never fails to be acclaimed by the public, and it is no less worthy of praise in the world of industry. A spirit of confidence and friendship is encouraged in enterprises where the personal factor is still retained, and this, we feel convinced, accounts for the consistent progress of these great concerns.

Points from Our News Pages

The Chief Inspector's annual report on Alkali Works gives important information on new processes, plant modifications, and works problems (p. 4).

An interesting history of the Mond Nickel Co. which celebrates its 25th anniversary. A portrait of the late Dr. Ludwig Mond (p. 7).

Mr. H. Sutcliffe-Smith's address at the Colour Users' Association (p. 8).

Interesting news notes from our French and Indian correspondents (p. 11).

A letter is published on "The Manufacture of Salvarsan" (W. M. Middleton) (p. 11).

The death is announced of Mr. Charles Crampton (p. 15).

Our London chemical market report shows much brighter conditions, with prices fairly steady (p. 20).

Our Scottish market report shows no outstanding changes, except that sodium sulphide is reduced. Home and export inquiry has been good (p. 23).

The Calendar

1925 July 9	Mond Nickel Co., Ltd.: Twenty-fifth Anniversary Dinner. 7.45 p.m.	Savoy Hotel, London.
13 to 18	Society of Chemical Industry: Annual Meeting.	Leeds.
Aug. 26 to Sept 2	British Association for the Advancement of Science.	Southampton.

Chief Inspector's Annual Report on Alkali Works

Review of Progress in Processes and Plant

The sixty-first Annual Reports, just issued, on Alkali Works by the Chief Inspectors for England and Wales and for Scotland (H.M. Stationery Office, pp. 31, 1s.), contain a careful review of the present state of the industry, with particular reference to new processes, plant modifications, and works problems. Below is given the substance of the report for England and Wales by Dr. T. Lewis Bailey. The volume also includes, in addition to the Scottish report by Mr. J. W. Young, a detailed consideration of the treatment of effluent spent liquors from the distillation of ammoniacal liquor, in continuation of the information given in the 58th, 59th, and 60th Annual Reports.

THE total number of works registered was 1,210, which entailed the inspection of 1,990 separate processes; there was thus a reduction of 9 in the number of works, but of 5 only in the number of processes as compared with the previous year. The number of special visits, rendered necessary by complaints of nuisance received from local authorities and from private individuals, was considerably smaller than in each of the two previous years. The most serious of these complaints concerned the emission of acid gases from the chimneys of zinc blende calciners, and it was urged by the complainants that immediate steps should be taken to obtain a provisional order for the scheduling of such works, the calcining of sulphide ores being at present a registered though not a scheduled operation.

As regards the chemical industry, the country has not yet got back to what may be considered normal conditions, but there continues that general change of outlook that augurs well for the future. This may be, in part, a natural sequence of lean years, but that it makes for true progress is evidenced already in the greatly altered, and at the same time improved, character of process outlines and details. The older, more cumbersome methods are giving way to manufacturing methods more reminiscent of the laboratory, and with it all is disappearing very markedly the idea that chemical works must be, of necessity, places of peculiar squalor: the changed aspect of some of the larger works is most marked. All this has its corresponding effect on the efficiency of the worker, as one has so often had occasion to remark. The development of electrolytic methods in particular foreshadows quite new conditions in more than one direction in the chemical industry of the future.

Alkali and Copper (Wet Process) Works

There has been a slight advance in the introduction of mechanical saltcake furnaces. At a number of works the hand furnaces have been rebuilt with satisfactory cooling boxes, and at all works the saltcake process—one which in bygone days was a cause of considerable anxiety to the inspector—has been operated practically without offence. Pipes and condensers have, on the whole, been maintained in better condition. Wet copper extraction is still carried on at a number of works, the chloridising roast being usually effected nowadays in furnaces of the mechanical type. The number of works at which this process is carried on is, however, becoming gradually smaller.

Smelting Works

From the Alkali Act standpoint only those works which calcine or smelt sulphide material are looked upon as smelting works. Owing to the extension of smelting operations at or near the mines, the smelting of copper ores in this country has been diminishing for years past, and it is now almost non-existent. The smelting of lead ores, too, is very limited; and so the chief sources of atmospheric pollution due to evolution of sulphurous acid from smelting operations in this country at the present time are the calcination of tin concentrates at the tin mines in the south-west of England and the calcination of zinc blende concentrates.

The former class of operation, in which the charge usually is not a heavy one, is comparatively easily dealt with, small towers containing limestone being, as a rule, quite sufficient to remove the bulk of the noxious gases; in extreme cases the employment of a milk of lime shower, instead of a limestone packing, may be necessary. But the gases from blende calciners provide a much more difficult problem, the use of the methods referred to being impracticable under present conditions. The obvious method of dealing with gases of sufficient concentration is to employ them for the manufacture of sulphuric acid, and where the percentage of sulphur dioxide warrants it this method is being adopted. In order to obtain a sufficiently strong gas for sulphuric acid manufacture, calciners of the muffle or closed type are necessary, and, even so, the operation must be of a practically continuous and even character if it is to provide a gas suitable for sulphuric acid manufacture.

Quite recently a new type of sulphuric acid plant has been devised, for which it is claimed that gas of variable strength and even unusually low in sulphur dioxide can be economically used. Should these claims be substantiated as regards the treatment of low-grade sulphurous gases from smelting operations, a still further advance will have been made in the problem of the reduction of atmospheric pollution due to smelting works. There is a further possibility: sulphide ores might be calcined, for the metal manufacturers of smaller output, at an existing sulphuric acid factory. As a matter of fact, this is to some extent being done.

The average acidity of the gases from 55 chimneys at smelting works, during the year under review, was 3·73 (expressed as grains of SO_3 per c. ft.); that of the gases from 301 chimneys draughting all other inspected chemical processes was 0·76. Complaint was received alleging undue emission of fume from a lead-smelting work. The installation of a bag filter was suggested, and its adoption has resulted in a removal of the evil.

Sulphuric Acid Works

Sulphur continues to be extensively used in place of pyrites, and at some works zinc blende is being used with good results. Replacement of nitre potting by catalytic oxidation of ammonia, for the production of the oxides of nitrogen required in the chamber process, continues to extend. The introduction of the heat exchanger on the converted body has improved the efficiency, and the plant generally has been standardised, so that its operation is now of a simple and straightforward character. The latest development in intensive working is on its trial at several works.

The scrubbing of exit gases by means of water in the second Gay Lussac tower has been introduced at several works. It has become obvious that, if this modification of older methods is to be successfully carried out, the quantity of water used must be strictly limited, and a reasonably clean tower must be employed; in the case of towers, fouled by long use with impure acid, subsidiary reactions take place, which do not exist apparently in the presence of strong acid. Where a clean packing is provided, the total acidity of the escaping gases is unusually low, and the weak nitrous vitriol produced can be returned to the system. Any reduction of exit-gas acidity means an increase in acid production.

The working of chamber plants in general has been such as not to call for serious criticism. The average acidity of exit gas, in terms of SO_3 per c. ft., was 1·09 grain, a satisfactorily low figure, which is practically identical with that of the previous year.

Sulphuric Acid (Class II.) Works

There is a growing tendency to make more use of waste heat and the heat of burner gases for the concentration of acid to high strength (168° Tw.) in cascade plants, and in some instances the acid fume is taken to the Glover tower. Modifications of this kind certainly make for economy; they simplify in some degree the concentration question, and there is no reason why they should not be operated without interfering to any extent with the reactions of the chamber process; moreover, the difficulties of special apparatus for fume condensation are obviated, and there is an absence of that irritating chimney fume, which is apt to be a feature of some concentration plants.

Oleum plants have been working very satisfactorily and with improved results from the Alkali Act standpoint. The old order of high acidity of exit gases is now a thing of the past.

Chemical Manure Works

The manufacture of superphosphate has been carried on to a limited extent. The high standard set as regards absorption of noxious gases, escaping from the process, has been maintained: the acidity of exit gases is now consistently under 0·1 grain per c. ft., in terms of the SO_3 equivalent of H_2SiF_6, and the average percentage of noxious constituents removed from the gases before passing to atmosphere is almost invariably well over 98 per cent., the general average condensation being practically 99 per cent.

Chlorine Works

The number of works registered in this section has increased from 34 to 37. Electrolysis of brine has now practically displaced the older methods of chlorine manufacture, and the change has been accompanied by a very distinct improvement in the atmospheric conditions in the neighbourhood of chlorine works.

The convenience of liquid chlorine, as a chlorinating agent, is evidenced by the largely increased output that is to be noted. There seems to be no reason why, in the future, transport of chlorine as such should not replace to a considerable extent the manufacture and long-distance carriage of chlorinated products of more or less unstable character, such as bleaching powder. Meanwhile, increased attention is being given to the perfecting of mechanical apparatus for what one may term the intensive production of bleaching powder, as opposed to the chamber system.

The chlorine industry has thus reached a stage which foreshadows the practical certainty of extensive developments in its use in the future; for instance, some of the older wet methods of manufacturing metallic chlorides are being superseded by methods involving the direct use of chlorine. There are many possibilities with a comparatively easily transportable chlorine of 100 per cent. strength.

Muriatic Acid Works

Fibre separation works, which are confined almost entirely to the West Riding of Yorkshire, have received more attention this year than was possible during the few years preceding. Representations have been made in all cases where deterioration of plant was responsible for conditions that were not always such as were desirable, and the response has been a perfectly satisfactory one in all instances. All works where muriatic acid is made or is recovered from any chemical operation have been carefully conducted, and the absorption of noxious gas has been practically perfect.

The number of tinplate flux works registered remains at 69. The treatment of the "scruff" at these works continues to be carried on without offence, as it has been now for several years past. The average total acidity, stated as grains SO_3 per c. ft., of the gases from 37 chimneys was 0·44 and the total chlorides, in terms of grains HCl per c. ft., was 0·032—last year's corresponding figures were 0·44 and 0·034. The highest average for total acidity at any works was 0·8, and the highest HCl average 0·12. When it is remembered that 15 years ago these chimneys were pouring out dense fumes with an average total acidity of 1·5 grain per c. ft. and free HCl 0·8 grain, with many individual instances where the total acidity was 4 grains and even more, and chlorides equivalent to even 6 grains of HCl per c. ft., with considerable quantities of oxide of tin and palm oil soot in addition, it is evident that a very marked improvement has been effected in the surroundings of these works, most of which are situated in populous neighbourhoods in South Wales.

Sulphide Works

Eighty such works are registered, in which either sulphuretted hydrogen is produced by the decomposition of a metallic sulphide, or a metallic sulphide is produced by means of sulphuretted hydrogen. In either case there must be no emission of this noxious gas to atmosphere: complete absorption offers no insuperable difficulties as a rule. The request is occasionally made for permission to burn the gas and to pass the resulting sulphur dioxide away to atmosphere, but this is simply replacing one noxious gas by another, a retrograde step in these days, when the desire is all in the direction of a reduction of atmospheric pollution from whatever source. Prevention of atmospheric pollution must be aimed at invariably, and when such problems have been tackled from this point of view it has not infrequently resulted in economic advantage, by the recovery of what would otherwise have been truly a *waste* product. Even to-day the study of waste products is one that is capable of presenting many problems worthy of investigation; the treatment of waste sulphuretted hydrogen even has not yet reached finality, and one not infrequently comes across new suggestions, the object of which is the direct recovery of the sulphur as such.

Arsenic Works

Thirty-eight such works were registered, as against 37 in the previous year and 32 in 1922. There has been somewhat greater activity, although demand fell off during the latter half of the year. Deposition flues have been kept in good order. At no works did the average escape of arsenious oxide exceed 0·06 grain per c. ft. of chimney gases; the general average for the 23 chimneys tested was 0·035 grain per c. ft.: to such figures no exception can be taken.

Nitrate of Iron Works

The appearance of a certain amount of brown fume has occasionally led to the receipt of a complaint against the owners of works, where this process is operated. It behoves all concerned in operations of this character to see not only that means for dealing with escaping fumes are provided, but also that they are invariably maintained in the best possible working order.

Tar Works

There are 378 such works, 10 more than in the previous year. Many of the smaller plants erected at gasworks, are for purposes of dehydration only. At the larger works, where operations extend to complete distillation to pitch, conditions have improved in a number of instances that had called for adverse comment. Pitch fume, as has been pointed out in previous reports, may constitute a very distinct nuisance—it is both irritating and noxious—but there is no need for the existence of this nuisance, if pitch coolers are kept in proper order and if the pitch is allowed to remain in them sufficiently long to obviate the running of the pitch to the bays at too high a temperature. It is by due attention to these points that a great improvement has been effected at more than one works recently.

In the construction of chemical plant the question of the relative levels of the various parts not infrequently receives insufficient consideration; for instance, it is sometimes found that there is insufficient fall from the pitch cooler to the floor of the pitch bay, with the result that, when it becomes necessary to carry a larger stock of pitch in the bays than usual—at times of reduced pitch demand—it is impossible to run the pitch to the bays by way of the coolers; at such times it is almost certain that the pitch, run direct from the still, will be run too hot, with consequent nuisance to the neighbourhood owing to pitch fume. A good deal of trouble was due at one works recently from this cause, and it became necessary to take up the matter very strongly with the owners of the works.

Again it is necessary to call particular attention to the dangers attending the cleaning of tar stills without absolute isolation from adjoining working stills. At one works this year three men were overcome while engaged on the cleaning of an idle still. A faultily introduced blank flange allowed foul gas to pass to the idle still when the operating stills were at the steaming stage. Had there been physical disconnection this could not have happened.

A distinctly good feature, introduced at a number of works, consists of an enlarged opening behind the pitch cock. By removal of the pitch cock and an attached plate an 18 in. opening is available, which provides greatly improved ventilation of the still and an easy means of getting rid of chippings; moreover, it provides simpler and safer means of entry to or exit from the still than the upper manhole does; it forms, in fact, a second manhole.

In the course of the laboratory investigations on ammonia plant effluents a fact emerged, which would appear to be of peculiar interest to those engaged in the distillation of coal-tar, viz., the totally different effects produced by solutions of free ammonia and by solutions of ammonium salts when agitated with tar. In the former case an emulsion of tar and liquor is produced, from which the tar separates only slowly, leaving a turbid liquor highly charged with oxygen-absorbing constituents; whereas in the latter case separation of tar and

liquor results most readily and appears to be complete, giving a supernatant liquor that is practically colourless and clear, and containing a relatively low amount of oxygen-absorbing constituents.

Sulphate of Ammonia and Gas-liquor Works

The number registered remains practically stationary; there are 564 sulphate works and 81 gas-liquor works. The great development has been in the direction of synthetic ammonia and its products.

Complaints as to the noxious character of ammonia plant effluents have been made in different parts of the country. We have already done a good deal in the way of suggesting methods of treatment, whereby the oxygen-absorbing power of such effluents may be reduced; and this year an important advance has been made by the adoption, at two works, of the suggestion that the devil-liquor should be evaporated. This can be done quite easily by spraying on to the bars of the producer fires or by other available means.

As has been pointed out previously (58th Annual Report, 1921, p. 13), the devil-liquor, although it may constitute only 10 to 15 per cent. of the total effluent, contains nearly half the total phenol; it is obvious that such a simple method of getting rid of the devil-liquor as that just mentioned has the effect in itself of considerably improving the works effluent.

Attention has been paid at several works to other points raised in past Reports, viz.: (*a*) introduction of air (where this is considered necessary) at a later stage in the operations of coal-gas making than formerly, and (*b*) extraction of cyanogen. By these means a further reduction has been effected in the oxygen-absorbing character of the ammonia plant effluent.

As to removal of phenol by means of fire-gases and steam in towers, one plant has attained a continuous removal of fully 90 per cent., and investigations are now in progress with a view to reducing the steam consumption, which in this case appeared to be unnecessarily high.

But there is no doubt whatever that the logical course to pursue would be to obviate the production of excessively noxious effluents, rather than to obtain them and then have to treat them by reason of their noxious character. The gas industry has changed in many directions of late years; in particular, the method of carbonisation has been entirely altered by the introduction of vertical retorts, and yet comparatively little attention, speaking generally, seems to have been paid to the methods of removal of tar and ammonia from the crude gas. The repeated agitation of tar with ammoniacal liquor, which usually takes place, gives too much opportunity for the entry of soluble tar constituents into the ammoniacal liquor; this is much more evidenced in the case of the vertical retort system than in that of the horizontal retort system.

It would appear that in the case of the newer systems much might be borrowed from certain features of coke-oven practice, such as early and more complete separation of tar by shock methods (the tar being then stored apart from the ammoniacal liquor), and more rapid cooling of the gas prior to ammonia scrubbing.

We have this year to some extent considered these points, and investigations are about to be undertaken at two works on the effect of separation of tar at the hot end of the system. Moreover, it seems by no means certain that with these newer methods of carbonisation the best way of recovering the ammonia—at any rate in large works—is that generally adopted. Is it not possible here also to borrow from coke-oven practice, and so reduce the amount of liquor produced and incidentally the amount of effluent from the works?

These appear to be points well worthy of the consideration of the gas industry, especially when it is remembered that the old illuminating standard has been replaced by a calorific standard.

Number of Works Registered.

	1924.	1923.	1922.
Alkali works	48	52	55
Scheduled and other works	1,162	1,167	1,185
Total	1,210	1,219	1,240

Number of Separate Processes of Manufacture under Inspection.

	1924.	1923.	1922.
Total	1,990	1,995	2,005

Average Amounts of Acid Gases Escaping.

Expressed as Grains per Cubic Foot.

	General Average. 1924.	1923.	1922.
1. *Muriatic Acid* :—			
Condensed in alkali works, per cent.	98·7	98·6	98·6
In gases of chimney or final outlet:			
(i) Alkali and Copper (wet process) works	0·068	0·073	0·069
(ii) Salt works	0·043	0·036	0·044
2. *Acidities of Chimney and Other Gases in terms of* SO_3 :—			
Escaping from sulphuric acid chambers	1·09	1·10	1·22
Final outlets from sulphuric acid concentration processes	0·67	0·75	0·65
Chimneys of smelting works	3·73	3·33	3·17
Chimneys of other works	0·76	0·72	0·70
All chimneys	1·22	1·10	1·00
3. *Condensers of Chemical Manure Works* :—			
(SO_3 equivalent of H_2SiF_6)	0·08	0·07	0·08

Amount of Ammonia Products Manufactured in 1924.

Expressed as Sulphate (25¾ per cent. NH_3)—Tons.

From Liquor Produced in—	1924.	1923.	1922.
Gasworks	151,161	142,980	144,817
Other Works (including Coke ovens, Ironworks, Producer-gas, Synthetic, etc.)	211,019	185,016	130,484
Total	362,180	327,996	275,301

Of the total quantity of ammonia products, the equivalent of 31,878 tons was manufactured as concentrated ammoniacal liquor; the balance of 330,302 tons consisted of other ammonia products (sulphate, chloride, nitrate, etc.).

Amount of Tar Products Manufactured in 1924.

	Gas and Coke Oven Works. Tons.	Other Works. Tons.
Tar distilled	1,582,784	12,219
Pitch produced	541,546	5,791

Scotland

The report from Scotland contains the following summary of raw materials and of products :—

Pyrites, blende and spent oxide burned for sulphuric acid :

In 1924 ..... 109,049 tons.
In 1923 ..... 104,613 ,,

Phosphates and bones dissolved for fertilisers :

In 1924 ..... 56,515 tons.
In 1923 ..... 54,144 ,,

	Salts of Ammonia. Tons.	Tar distilled. Tons.	Pitch produced. Tons.
From gas works	20,865	132,165	32,995
,, iron works	5,940	62,616	34,845
,, coke ovens	6,800	15,410	6,050
,, producer gas	5,520	8,534	3,995
,, shale works	52,163	—	—
Total, 1924	91,288	218,725	77,885
In 1923	97,594	224,968	89,554

The ammonia is expressed as pure sulphate, but 980 tons were obtained as concentrated liquor ammonia, and 534 tons as ammonium chloride. Tar partially distilled for road material exceeded 100,000 tons.

Ammonia Compounds at Oppau

A RECENT report by the American Trade Commissioner to Germany reveals the fact that the Oppau works are producing numerous other ammonia compounds than sulphate. The works turn out (in addition to ammonia, 25 per cent. to 100 per cent.) ammonium sulphate (20·6 per cent. N); ammonium chloride (25 per cent. N); ammonium bicarbonate (Hirschhorn salts); artificial urea (46·6 per cent. N); nitric acid (50 and 98 weight per cents.); sodium nitrate (16 per cent. N), potassium nitrate, sodium nitrite, ammonium nitrate (35 per cent. N), potash ammonium nitrate (16 per cent. N, 25 per cent. K_2O), and ammonium sulphate-saltpetre (27 per cent. N).

Twenty-fifth Anniversary of the Mond Nickel Company

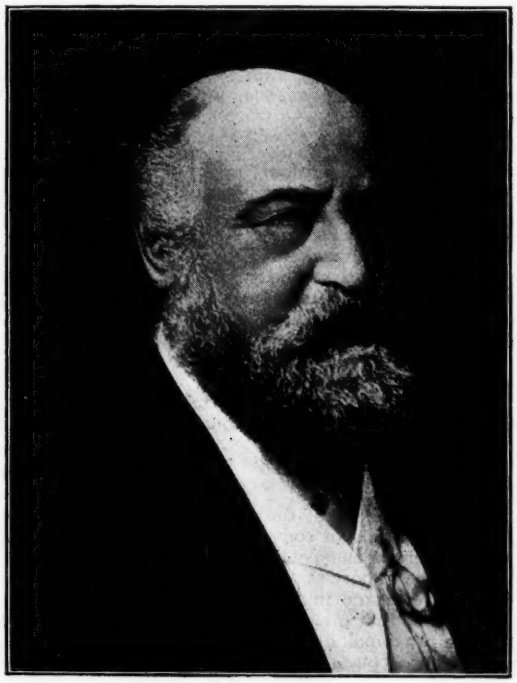
Review of a Remarkable Career

The Mond Nickel Co. is this year celebrating the twenty-fifth anniversary of its foundation, and a commemorative dinner is to be held at the Savoy Hotel, London, on Thursday next. We give below a brief sketch of the company's history, together with a photograph of its founder, the late Dr. Ludwig Mond.

THE company is one of Great Britain's most important industrial organisations, and was founded in 1900 by the late Dr. Ludwig Mond, F.R.S., whose name is also perpetuated in that other industrial foundation, Messrs. Brunner, Mond and Co., which celebrated its fiftieth anniversary two years ago.

The central feature of the company is its peculiar process for refining nickel. The discovery to which the process is due was made in 1889 by Dr. Mond, in conjunction with Dr. Carl Langer and Dr. Frederick Quincke, at his private laboratory, during the course of some experiments designed to eliminate carbon monoxide from hydrogenous gases. While engaged in this research work, they discovered that nickel has the remarkable property of combining with carbon monoxide to form a volatile compound, and the chemical reaction thus divulged inspired them with the idea of devising a new nickel refining process. After ten years of patient toil, the engineering and other difficulties involved in the problem were overcome, and a refining plant capable of producing 1,000 tons of nickel a year was erected at Clydach, near Swansea. Meanwhile, Dr. Mond had acquired some rich nickel deposits and erected a smelter in the Sudbury district of Ontario, Canada. The company, therefore, which was formed in 1900 to take over the nickel patents and the properties in Canada and Wales, was in the fortunate position of acquiring a going concern, with the added advantage that the whole of the property was contained in the British Empire.

The present chairman of the company is Sir Alfred Mond, and the Board of Directors also includes Sir Robert Hadfield and Mr. Robert Mond, as well as Dr. Carl Langer, whose indefatigable work, in adapting to industrial ends the principle on which the carbonyl process is based, contributed so largely to its eventual success.



THE LATE DR. LUDWIG MOND, F.R.S.

The Consumption of Nickel

When the Mond Nickel Co. was founded, the total consumption of nickel in the world was about 9,000 tons a year, of which about one half was refined from French, *i.e.*, New Caledonian ore, and about one third from Canadian ore. The present consumption of this metal is 35,000 tons a year, of which 90 per cent. is mined in the Sudbury district of Ontario. In this district the company now owns 29,000 acres of land containing copper nickel mines. The power supply for the mines and smelter, which for the first eight years was derived from steam, is now obtained from the company's hydro-electric stations erected on neighbouring rivers. The refining works at Clydach have been enlarged to deal with the increased output from the mines and to meet the greater demand for the metal. The ore from the mines contains about equal proportions of nickel and copper, and the copper contents are converted into sulphate of copper crystals, the bulk of which is sold to the vineyards of Europe, where it is used to counteract the fungoid diseases of the vine. Another product derived from the ore is nickel sulphate in the crystalline form, which is used in the nickel plating industry and as a catalyst for the hydrogenation of oils.

Modern Uses of the Metal

The applications of nickel have undergone in recent years a remarkable change. Prior to and during the war, more than half of the world's output of nickel was used in the manufacture of armour plate, guns, projectiles and other armaments. The demand for these purposes naturally declined when hostilities came to an end, and it dwindled away still more as a result of the international agreement made at Washington to restrict the building of warships. But the incentive given to the energies of metallurgists and inventors during the long struggle for predominance was the cause of finding other applications of nickel, and the result has been that the consumption of nickel is larger now than it was before the war began. The extension of the use of the metal thus brought about, is chiefly as an ingredient in non-ferrous alloys, to which it imparts great strength and toughness. With regard particularly to the nickel chromium alloys, the scope of their industrial applications is immense, not only for electrical purposes, but in aeronautical engineering, and in all classes of engineering constructions where strength under rise of temperature is an important requirement.

Owing to the peculiarity of the company's nickel refining process, which isolates the element in volatilised form, and then deposits it in metallic form, Mond nickel is entirely free of cobalt and other impurities. Its great purity is an undoubted advantage in the preparation of many of the modern alloys, and in the manufacture of pure nickel coins and pure nickel kitchen utensils. The resistance of pure nickel to the action of food acids and alkalis renders it an ideal material for hygienic use in the kitchen.

The origin and development of the Mond Nickel Co. affords an instructive example of how an industrial process may spring from the practical adaptation of a secret wrested by chance from Nature, given the genius to grasp its purport and the patience to control and adapt it. The process has proved to be a considerable asset to the British Empire in past years, and all those who have the Empire's prosperity at heart, will wish the company a career of beneficial prosperity in the future.

The Premier on Research

THE Prime Minister, speaking on unemployment in the House of Commons on Monday, pleaded for a greater encouragement of scientific research in industry. While the electrical industry was spending a quarter of a million on research, one concern in America was spending nine million dollars a year and employing several thousands in its laboratories. "Victory," he said, "would go to the nation which most efficiently harnesses science to industry." He said that the Government was conducting research in twenty-four industries and had obtained remarkable laboratory results in low temperature carbonisation of coal. It was not yet a commercial proposition, but when it was it would give the country the greatest push forward since the discovering of steam. They were considering the erection of a plant at East Greenwich for furthering its commercial exploitation.

British Colour Users and the Dyestuff Industry

Problems Remaining to be Solved

At the annual general meeting of the Colour Users' Association, held in Manchester on Tuesday, the condition of the British dyestuffs industry was comprehensively reviewed by the Chairman (Mr. H. Sutcliffe Smith) from the standpoint of the colour users, particular attention being drawn to the level of prices and to the importance of avoiding overlapping in the production of the more easily made colours and of developing the production of newer and better types of colours.

THE CHAIRMAN, in moving the adoption of the annual report and accounts, said that the colour-using industry was in a different position from any other in the country, in that it was the only one hedged round with a Prohibition Act affecting its supply of raw materials. The Dyestuffs Licensing Committee during the past year had dealt with no fewer than 4,587 applications for licences; and although it was faced with a difficult task its decisions had been strictly in harmony with the spirit and letter of their terms of reference. He was indebted to the Board of Trade for the following summary of the quantities and values licensed during the years 1921 to 1924:—

LICENCES GRANTED FOR IMPORTATION.

Year.	From Germany.		From Switzerland.		From Other Sources.		Total.	
	Lb.	Value £	Lb.	Value £	Lb.	Value £	Lb.	Value £
1921 ..	671,032	197,466	1,796,754	763,299	209,719	82,056	2,677,505	1,042,821
1922 ..	1,325,671	375,675	1,638,235	694,740	270,987	33,404	3,234,893	1,103,819
1923 ..	1,817,571	493,499	1,412,616	459,861	461,253	36,177	3,691,440	989,537
1924 ..	1,805,145	398,226	1,191,931	363,513	39,158	9,204	3,036,234	770,943

These figures were exclusive of colour imported as reparation from Germany, the sales of which, during the period under review, were 7,400 tons. The licences granted in 1924 showed a decrease since 1922, but there was still a considerable amount of business which should now be undertaken by British makers. This Act had been in force for upwards of four years; and while he willingly acknowledged that progress had been made by British makers, he wished to call attention to the fact that in 1924 (exclusive of reparation sales) it was necessary to licence nearly 1,400 tons of dyestuffs. This quantity consisted of the newer types, a fact to which the British makers ought to give serious attention. It would be advisable for the Dyestuffs Development Committee to take the colour users' very competent committee of experts into regular consultation.

Safeguarding of Industries Act

Many of the chemicals in which the textile section of the colour-using industries were seriously interested did not come within the operation of Part I of this Act. Certain chemicals, however, were scheduled and subjected to the import tax of 33⅓ per cent. Several of these were not yet made in this country, nor did it appear that any progress in that direction was being made. A significant instance was oxalic acid. In regard to this product a very lively fight took place before the referee. The decision went against the importers and the chemical was consequently retained on the list. It was interesting to note, however, that the production of this chemical in this country had ceased, despite the protection, and the article was being imported. The fact, therefore, was that the consumers paid 33⅓ per cent. more than was necessary, and no British manufacturer was benefited thereby. He suggested that chemicals which had been on the list during the past few years, and which were not yet being made in this country, unless a *prima facie* case could be put forward by British makers of their intention to manufacture them immediately, should be withdrawn from the list and imported free of duty.

Reparation Dyestuffs from Germany

By the Dawes Report and the London Agreement adopted to give effect to that report, dyestuffs to be imported as reparation had now been placed in exactly the same category as any other reparations in kind. This had necessitated an alteration in the method of importing reparation dyestuffs, and if it was desired to continue to import dyestuffs as reparation it must now be done on a commercial basis. Under the arrangement made by the Government with the Interessen Gemeinschaft, the latter would supply the dyestuffs and intermediate products required for consumers in the United Kingdom during the period ending 28th August, 1928. All deliveries must be the subject of individual contracts between the I.G. and the buyers, and the usual import licences would be required. There was provision in the agreement to safeguard the interests of smaller users who did not directly import dyestuffs from Germany. The general feeling of users, however, was that it was preferable for the time being for the ordinary procedure to prevail, by importing dyestuffs in accordance with everyday custom. In concluding this arrangement, the Board of Trade sought the advice of the Association, and the users very much appreciated the action of the Department. The other Allies were continuing to take deliveries of dyestuffs as reparation; but as there were stipulations in all the Allied agreements whereby these dyestuffs had to be sold on a commercial basis, it was not anticipated that users in those countries would be able to obtain their wares at more advantageous prices than British buyers, unless of course they were subsidised by their Governments. In the past, no doubt, reparation dyestuffs had been sold in certain Allied countries at lower prices than here, with the result that users in this country had been placed in an unfair position. Developments would be watched from time to time, and if it was found that foreign users were obtaining German dyestuffs on more favourable terms than users in this country the matter would be taken up by the Association.

Prices of Reparation Colours

After stating that the stock of reparation dyestuffs in hand was approximately 1,100 tons, the Chairman said that there was no doubt that the Government have made very substantial profits out of the sale of colour, and while this might be desirable from one point of view, the reflex bearing of those high prices upon the prices charged, not only by British makers but by foreign manufacturers, had to be reckoned with. The high prices ruling for reparation colour had tended to maintain a higher level of prices than should have prevailed. The users contended that not only the profits, aggregating many hundreds of thousands of pounds, made by the Government, but also the whole proceeds of the sale of reparation dyestuffs, should have been applied to the furtherance of the dyemaking industry in this country, because of its national aspect and because of the Government's pledge that they would not place the colour-using industries in an unduly disadvantageous competitive position.

Effect on Industry of Dear Dyestuffs

The Association regarded the acceptance of the two and a half times pre-war factor as a valuable concession, but in the light of the lower prices for dyewares ruling in foreign countries, and considering that the general average wholesale price for commodities as scheduled by the Board of Trade was 160, an index figure of 250 for dyestuffs was still too high.

The maintenance of an artificially high level of prices, inevitable from the incidence of the Dyestuffs Act, resulted not only in high prices for British wares, but also in high prices for foreign dyestuffs. This was what one would expect in the ordinary way, but he had come definitely to the conclusion that the prices we had to pay for foreign dyewares were too high, and that too much advantage was undoubtedly being taken by foreign suppliers of the Dyestuffs Act. This made it all the more pressing that the British makers should

increase their productions in the types of dyestuffs now being licensed for importation into this country.

He had had abstracts made of a list of the more important dyestuffs imported under licence during 1924, and found that the increase in price over pre-war was approximately 220 per cent., in other words an index figure of 320. This was a serious position from the textile and other colour-using industries point of view. The prices of foreign colour, however, current for 1925 had been reduced, and on the average they approximated closely to the new two-and-a-half times factor accepted by the British makers. This corroborated his contention that the prices of dyestuffs in this country were entirely artificial, and were generally on the level of the prevailing factor ratio adopted by the Licensing Committee.

The Value of Imported Dyestuffs

It had been freely stated by the British makers that they were supplying 80 per cent. of the dyewares used in this country. Coming from the source it did, this figure must be accepted, and assuming it to be correct it would appear that the total increased cost of dyestuffs, and particularly imported dyestuffs, to-day must be enormous in comparison with pre-war. He had analysed the value of imported finished dyestuffs for the past few years, and the figures were as follows :—

Year.	Tons.	Value.
1920	10,397	£7,552,799
1921	2,985	1,539,406
1922	2,880	1,326,174
1923	2,808	1,004,482
1924	3,557	1,339,729

an average annual importation of 4,525 tons, value £2,552,518. Taking, however, the 1924 imports, it seemed extraordinary that if this only represented 20 per cent. of the consumption, the total cost of dyestuffs to the colour-using industries in 1924 must be many multiples of 1913. From official returns, the total consumption of colour in this country pre-war was approximately £2,000,000 sterling. The consumption in 1924 was very much less than in 1913, and taking it on the basis of 70 per cent. it was obvious that in sterling value the imports, although only 20 per cent. of the consumption, were as great as the total imports in 1913, which then represented 80 per cent. The only deduction from this, owing to the absence of authentic figures as to the total British output, was that the colour users were during 1924 called upon to pay, not two and a half times pre-war, but very much in excess of that figure. On the basis of three times pre-war price, the total consumption of colour to-day should not exceed 4½ million pounds sterling, of which, according to the Board of Trade returns, one-third was being paid to foreign makers for one-fifth of the consumption. This was a matter which required very close investigation.

Average Prices per Lb.

If a closer scrutiny of the imports was made, based on the average price per lb., extraordinary corroboration of these deductions was found. According to the Board of Trade returns, the average price per lb. of finished coal tar dyestuffs, exclusive of alizarine and synthetic indigo, was as follows :—

Year.	Pence per lb.	Per cent. Increase over 1913.
1913	11·7	—
1920	79·2	577
1921	66·7	470
1922	65·8	462
1923	49·8	326
1924	58·25	398

The average price for 1921 to 1923 would be reduced by the fact that the Board of Trade import figures included reparation colour which would be imported by the Government at a lower value than the current rates. Even making allowance for reparation imports, the figures were not strictly comparable, owing to the fact that in 1924 imports doubtless consisted of a larger proportion of newer types of colour and less of the cheaper colours now made in this country. Despite this, the increase in 1924 might be taken as truly indicative of the position, and it clearly showed that users were being unduly penalised by the Dyestuffs Act. Notwithstanding this, however, users were as determined as ever to support a British dyemaking industry if it could be done without seriously endangering their export business, but this determination must be backed by the knowledge and assurance that the British makers were taking full advantage of the protective period afforded to them, and they must show an earnest of their fitness to meet world competition at an early date, otherwise the enormous sacrifices the users were making in paying high prices for their wares would be in vain.

Synthetic Indigo Price

There were no imports of synthetic indigo during 1924, and it was gratifying, from one aspect, to note that the total requirements of the country were met by a British maker. The cost, however, had been much too severe, and this was a striking example of what colour users were being called upon to do in their support of the British industry. During 1924 the average price of synthetic indigo was 16d. per lb., whereas, during that period, competitors in Germany, Switzerland, Italy, France, and America were purchasing indigo at probably 50 per cent. less than that figure. Strong representations were made, with the result that the price had now been reduced to 10d. per lb. There can be only two deductions from this enormous fall, either (1) that the British makers had been taking an undue advantage of the protection afforded to them by the Dyestuffs Act, or (2) that the new price of 10d. per lb. was an uneconomic one. He was loth to believe that the latter was the proper deduction, when indigo was being sold at from 7d. to 8d. per lb. in foreign countries which had no advantages in the rate of exchange, labour costs, or prices of their raw materials.

British Dyestuffs Corporation

The progress of the dyemaking industry in this country was largely dependent upon the progress of the British Dyestuffs Corporation. During the past three years he had reiterated three cardinal points, namely (1) That the Government should cancel their loan ; (2) that the company should be reconstructed ; (3) that the directors should see their way to have the Corporation managed by men who had been brought up in the industry on the lines of the big textile associations. It was gratifying that the Corporation had fulfilled two of the stipulations of the users by appointing Dr. E. F. Armstrong, as the managing director, to devote his full time to the company. The task which Dr. Armstrong had undertaken called for high technical skill and organising ability, as well as the greatest tactfulness. They wished him every success in his efforts, and assured him that he might rely upon the co-operation and support of all users. It was vital, if the industry was to be in a position at the end of the period of the Dyestuffs Act to meet world competition, that the dyemakers should take the utmost advantage of the few remaining years to put their organisation on a thoroughly efficient basis. He believed this would only be done if the Corporation accepted the third stipulation of the users, by having at its call men who had a lifetime's experience in the production of dyestuffs.

Lord Moulton, in addressing that Association in 1919, suggested five years as the period of special protection for the dyestuff-makers. Five years was evidently too short a period, but most users were prepared to suffer the minimum disabilities of a Prohibition Act for the full period of ten years, provided they were assured that real progress was being made.

The number of dyestuffs not manufactured in this country was far too large after a period of four years' protection, and in the opinion of consumers greater efforts should be devoted to producing them. The users were still of the opinion that the dyemaking industry must be firmly established and developed in this country, (1) for national security, (2) to ensure a regular supply of dyestuffs, vital for the colour-using industries in the event of war, and (3) as a training ground for highly skilled chemists so necessary for our future prosperity. It was no use training chemists unless they had an opportunity of applying their training and experience. On that ground alone it is very necessary for the dyemaking industry to be fostered and developed.

Sir Max Muspratt's Plea for Co-operation

It was particularly gratifying to users to learn, from a recent speech of Sir Max Muspratt, that there was a prospect of active co-operation between heavy chemicals and dyestuff manufacturers. These two industries had so many direct and indirect interests that it was necessary, for the production of dyestuffs on an economical basis, that there should be the utmost co-operation between them, and it gave him personally

great satisfaction to read Sir Max Muspratt's comments on their future policy in this connection. He hoped the British chemical manufacturers were not losing sight of the enormous developments which had taken place in Germany as the direct result of the successful establishment of practical industrial methods of making synthetic nitrogen compounds.

Referring to the proposed agreement with the I.G. the Chairman said that the two main principles which colour users wished to safeguard were :—(1) Colour users must be assured of free access to the best quality and range of dyestuffs produced anywhere, and (2) they must be on as favourable a basis as regards price as any of their world competitors. Most users would not be averse from an arrangement between British makers and the I.G. provided they were satisfied on these two points, and further, that the status of the British dyemaking industry was not impaired, but had the opportunity of progressing. In that progress and development the expansion of the export trade in dyestuffs must not be overlooked.

Referring to the Development Committee, he said that there was a considerable amount of overlapping in the production of the more easily made colours, and there was much yet to be done in the making of the newer and better types of colours. It was in those colours that progress must be made, if we were to become a self-contained unit in the production of dyestuffs.

In seconding the resolution, which was carried, Mr. T. Parker Smith said if there had not been a Colour Users' Association it was not easy to visualise what the position of colour users would have been in the difficult situation created by the Act, which gave a very large measure of power to the British Dyestuffs Corporation and other manufacturers of dyestuffs. As it was they had passed through great difficulties, and looking back they could see that things had been accomplished which would have been impossible if they had been working individually.

Chemical Company Director's Failure

A SITTING for the public examination of Oswald Robert Mounsey, Parliament Mansions, Westminster, London, S.W., was appointed in the London Bankruptcy Court on Friday, June 26. The liabilities were estimated at £10,009, and the assets nil.

The debtor in July, 1915, registered a private company called the Colnbrook Chemicals and Explosives Co., Ltd., and he was appointed its managing director. He acted in that capacity until February, 1916, when he resigned, and he was afterwards employed as manager at a munition factory until July, 1917. In August, 1917, he registered another company called the Chemical Engineering Co., Ltd., and became the managing director. He acted as such until its liquidation in February, 1921. While acting as a director of that company and two subsidiary companies, the debtor guaranteed payment of certain debts due, and when called on to meet his liability was unable to do so, with the result that in February, 1921, he executed a deed of assignment of his property in favour of a trustee. All his creditors would not, however, assent to it, and a dividend of 4s. o¾d. in the £ was paid on liabilities amounting to £11,713. The debtor attributed his insolvency partly to general financial depression.

The examination was ordered to be concluded.

U.S. Increased Duty on Coal-tar Dyes

THE U.S. Treasury Department has ordered an increase of 5 per cent. in the duty on a certain class of coal-tar colours. Instructions have been sent to the Collector of Customs at New York to assess duty on the coal-tar products known as rapid fast black, rapid fast blue, rapid fast green, and similar products at the rate of 45 per cent. *ad valorem* and 7 cents a pound. It has previously been the advisory practice at the Port of New York to assess these products with duty at the rate of 40 per cent. *ad valorem* and 7 cents a pound, in the belief that they were intermediate products requiring further manipulation before use. The Department stated that investigation showed that these products are used in the imported condition as colours in the same manner as all other colours are used, and therefore are properly dutiable at the higher rate.

British Association of Chemists

The Question of Applicants' Expenses

THE conditions under which applicants are granted interviews for Government appointments have lately come under the Association's notice.

It is a common custom for private firms to pay the travelling expenses of those who are granted personal interviews, but this appears not to be the case where Government appointments are concerned. In the particular case in question it was necessary for the applicant to undertake a journey that entailed both railway and hotel expenses. His application was unsuccessful and he was, of course, considerably out of pocket. A communication was sent by the Association to the Home Secretary, who replied to the effect that it was the common practice in applications of this kind not to pay expenses, and a notice to that effect was annexed to the documents dealing with such appointments.

From many points of view this practice is highly to be deplored. Such regulations tend to discourage many applicants, and at a time when employment is scarce, and monetary consideration of paramount importance, they will automatically eliminate many who are otherwise well qualified to fill the positions. In the second place, the Association discourages application for posts where travelling expenses are not disbursed, since it is no small slight to the profession of chemistry that appointments governed by such conditions should be advertised. Though some may exist, no case of a private firm with such a rule has come under our notice ; and and we feel that what private enterprise can do the Government can, and ought, to do.

This question, insignificant though it may appear, is closely akin to that larger question of professional prestige. There is unquestionably in industry an increasing respect for the profession of chemistry, and we are not willing to believe that private enterprise is more sensitive in this respect than the official mind. The Government must have evidence of the indispensable nature of the services which chemists rendered during the war. It seems but grudging recognition of those services if it is found impossible to pay the expenses of a chemist who desires to enter his country's service in another capacity. We would advise all chemists, therefore, to refuse personal interviews where there is no guarantee that expenses entailed in travelling will be paid, for it is our opinion that apart from the personal inconvenience caused in this way, the acquiescence of one member involves and affects the prestige of the whole profession.

All inquiries concerning the Association should be addressed to the General Secretary, British Association of Chemists, Empire House, 175, Piccadilly, W.1. H. T. F. R.

Science and Industry, 1914-1924

UNDER the title "Ten Years' Progress in Science and Industry," an important work will be published in the latter half of this year by *Chimie et Industrie*. It will be edited by M. Jean Gerard, and in its complete survey of the industry by eminent authorities in every field, will constitute a monumental work of reference. The evolution of the science of general, organic, and agricultural chemistry, and biochemistry, will form separate sections, and under the heading of Scientific and Technical Progress every phase of chemical activity and each related industry will be surveyed by authoritative writers. Other features will be "France's Colonial Effort," "French Economic Equipment and Organisation," and "The Industrial Effort of France," all contributed by prominent politicians.

The work will be published from 49, Rue des Mathurins, Paris, at a price of £1 12s. A special price of £1 10s. is valid until September 30.

B.D.C. Colours

Two new colours have been added to the extensive range issued by the British Dyestuffs Corporation—namely, Union Black 80,379 and Union Black 89,298, which are of special interest to garment dyers. They possess the property of giving uniform solid shades on mixed materials consisting of wool, cotton, natural silk, and artificial silks other than acetate silk. One dye is characterised by its greenish tone, while the other is a black, of reddish shade. The method of application is that in general use for union colours.

French Chemical Notes

(From Our French Correspondents.)

The fifth annual congress of the "Société de Chimie Industrielle" will be held in Paris this year and opens on October 4. All foreign chemists are as usual invited. Particular interest attaches to the conference this year, which marks the centenary of Chevreul's invention that gave rise to the wax candle industry. A patent for this was taken out in 1825 in conjunction with Gay Lussac, and was destined to have many practical applications. It revolutionised the manufacture of soap and was instrumental in the development of the glycerine and vegetable oil industries. A special meeting in commemoration of Chevreul will be held at the close of the conference, on October 11, and President Caillaux, with representatives of the Government, the Academy of Sciences, and the Natural History Museum, will take part in the ceremony in Paris, in the neighbourhood where, a century ago, Chevreul made his remarkable discoveries.

Dyestuff Developments

The annual meeting of the Etablissements Kuhlmann was held recently, this year marking the centenary of the dyestuff concern which was founded in 1825 by Frederick Kuhlmann, an Alsatian chemist.

In recalling the history of the firm, M. Agache, President of the Board, said that it had now rendered France independent in its dyestuff requirements, and, in spite of intense competition, had triumphed over all obstacles.

The output of colours was increased during the year and appropriate installations were made in the Oissel factory, as a consequence of which the company is now completely independent of foreign resources in the manufacture of dyes. The tonnage of synthetic colours produced totalled 9,092 in 1,000 different marks, a progression of 50 per cent. on the previous year. The company's activities were not limited to the dyestuff department, as its mineral manufactures in 1924 reached a total of a million tons. The net profits for the year were over 21 million francs, and a dividend of 30 francs per share is being paid.

The Etablissements Kuhlmann owns several other companies, including the Anzin Mines Coke Oven Synthetic Ammonia Plant, and hopes by the end of the year to be able to supply synthetic nitric acid from its works which are being constructed at Madeleine-lez-Lille.

Chemical Market

The fall of the pound below 100 francs provoked a certain activity in sodium nitrate transactions, which exchange rates render almost prohibitive in France, but the wants that remain to be supplied are much restricted. The ammonia sulphate season is ended and the factories are no longer taking orders for delivery from the end of July. So far no indications are available as to the prices that will be applied next August by the manufacturers, but the trend of the exchange foreshadows a rise. The ordinary sulphate was recently priced at 112 frs. per 100 kilogrammes (delivery at factory) and the extra dry at 113 frs., with the special dead season bonus. Cyanamide is still in demand despite the slack season. The granulated 16½ per cent. is quoted (factory) 84 frs. 15 centimes per 100 kilos; 20 per cent., 103 frs.; 21 per cent., 107 frs. At the end of this month the manufacturers of superphosphate are expected to fix the autumn rates. Some think that spring prices will be maintained, but this is not very probable and they are almost certain to be much higher. The advent of the period for the treatment of cryptogamic diseases has given a fillip to the demand for copper sulphate which is quoted 216 frs. the 100 kilos (factory).

Artificial Camphor

The production of artificial camphor is being pursued with signal success by the "Société Alsacienne de Produits Chimiques." The method that the company applies condenses pinene with an organic acid of a special type, yielding the minimum of polymerised products. The ether of borneol thereby obtained is saponified and the borneol is oxidised by an appropriate agent. By this process the coefficient of utilisation of the pinene attains 80 per cent. Modern methods of camphor synthesis should ensure the abundant supplies essential to the needs of modern industry, in which there is a steady increase in camphor consumption, as the natural harvests of China and Japan are almost at a standstill.

Indian Chemical Notes

(From Our Indian Correspondent.)

Some time ago the question regarding the grant of protection to the magnesium chloride industry in India had been referred to the Tariff Board for investigation, and the Board has now submitted its report, which states that the claim to protection is not justified. The Board is prepared to admit that India has natural advantages in respect of raw material, and also that German competition is now killing the Indian industry, but the question is decided on the issue as to whether the industry will be able to hold its own and face world competition without assistance. It has to be remembered that the Bombay Government had supported the claim for protection even by an imposition of an 80 per cent. or 100 per cent. *ad valorem* duty. After examination of the claim, the Board considers that a duty of about 70 per cent. will be required to keep up the industry, and this assistance will be required for all times, because Germany will be able to undersell India in her own market. "Until the price of the imported product has reached stability, no reasonable assurance as to the prospects of the industry is attainable." The report further states that it is likely that as a result of their decision the manufacture of magnesium chloride in India will cease, but it does not appear that any important interest will be injured, as the capital, which would be unproductive, is not more than Rs.1½ lakhs. The continuance of the industry is not necessary on national grounds.

A new source of monazite in India has been discovered in the black sand of a part of the coast of Orissa. According to a recent survey carried out by the Geological Survey Department of India, the deposits on the mainland coast appear to be spread for about 23 miles of the coast, having an average thickness of 10 in., and breadth of 70 ft. The source to work upon is therefore fairly large, and the percentage of thoria is 7·9, considerably higher than the Brazilian sands, though a little lower than the Travancore and Ceylon deposits. After being worked for monazite, the sands can be worked for ilmenite, which forms more than 75 per cent. of the material. Ilmenite is essentially a ferrous titanate and has various industrial uses.

S. G. W.

"Manufacture of Salvarsan"

To the Editor of The Chemical Age.

Sir,—In your correspondence columns of June 27 Messrs. Burroughs Wellcome & Co. complain of the second paragraph of my article of June 13. The paragraph in question makes no attempt to deal with the question of priority in the manufacture of Salvarsan in this country, and certainly no responsible writer on the subject would attempt to deny Messrs. Burroughs Wellcome the highest credit for the courage and enterprise in tackling so difficult an undertaking immediately its national importance was realised.

I cannot agree that my statement with regard to the American demand for Salvarsan is essentially at fault. The situation in America in December, 1915, was such that, although Salvarsan was being made here and there, as for example in Philadelphia, for experimental purposes, it could not be sold there on account of the German rights under American Patents. The shortage was at that time so acute that the British Government gave permission to an American company to take from Rotterdam sufficient foreign Salvarsan and Neo-salvarsan to fill their requirements for six months.

In August, 1917, attempts were made in Washington to obtain the suspension of the German Patent rights, but vigorous opposition was offered on behalf of Meister Lucius and Brüning. The German rights under the American Patents were, however, vested in a guardian under the U.S. Trading with the Enemy Act of October, 1917, and the process was taken over under License by the Chemical Foundation of America. The first legal action to prevent the import of Salvarsan was taken by this Corporation against the Anglo-French Drug Co. in August, 1919.—Yours, etc.,

Chemical Department, Birkbeck College. June 29.

Wm. W. Myddleton.

German Dye Activities

Present Profits and Prospects of the I.G.

THE German dye industry is already a closely woven and compact organisation with common interests, and it is fast becoming an almost homogeneous institution. The I.G. has added economic cohesion to technical efficiency, and is to-day probably the largest combination of organic chemical manufacturers in the world. The plans for the complete merging of all the I.G. firms into one single dye trust have not yet actually materialized, but the idea is being developed and is making definite progress, according to *"The Times" Trade Supplement.*

A dividend of 10 per cent. for the I.G. had been confidently anticipated, and could have been paid without difficulty; but in view of high taxation, etc., the members of the group have decided on a distribution of 8 per cent. only. The past trading year has, on the whole, been favourable for the chemical trade in Germany, although foreign competition in aniline products has made itself felt very keenly. By the introduction of certain improvements and new processes, the nitrogen industry of the aniline group has succeeded in obtaining profitable results. The gold conversion having been successfully carried through, the aniline group now has some 641,600,000 gold marks capital.

Present Comparison with 1913

The Badische Aniline and Soda Works in Ludwigshafen is the first firm in the group to publish its report for the year 1924. No particulars are given of the amount received from the Ruhr compensation funds. The following items, taken from this account for the year 1924, are interesting, especially when compared with the corresponding figures for 1913:—

	1924. Gold marks.	1913. Gold marks.
Gross profit ..	39,080,000	32,400,000
General expenses ..	8,590,000	6,010,000
Depreciation ..	15,610,000	8,260,000
Net profit	14,880,000	17,170,000

In agreement with the other members of the group, a dividend of 8 per cent. was paid on the ordinary capital, amounting to 14,080,000 gold marks, 3½ per cent. on the preference shares, making 42,000 gold marks, an amount of 311,938 gold marks for directors' fees, and 446,502 gold marks were carried forward. The capital of this company is given as 176,000,000 gold marks and 1,200,000 preference capital. In 1913 the capital was standing at 36,000,000 gold marks.

With regard to the course of business in 1924 the report points out that all transactions were influenced by the scarcity of capital, and that all expenses had to be subjected to the strictest investigation. The sales of nitrogen came up to expectations. The demand on the part of German agricultural interests was also satisfactory. In consequence of the increased consumption of good quality coal and coke, the company has extended its long connection with the Rhine Steel works by participating more largely in this undertaking. The company has also taken a larger interest in lignite deposits.

Canada's Chemical Production in 1924

PRODUCTION of chemicals and allied products in Canada during 1924 reached a total of $107,536,335 as compared with $111,244,156 in the preceding year, as reported by the Mining Metallurgical and Chemical Branch of the Dominion Bureau of Statistics at Ottawa. The coal tar distillation industry, the manufacture of heavy chemicals and the production of medicinal and pharmaceutical preparations showed improvement; the paint and varnish industry, the manufacture of inks, dyes and colours, the wood distillation industry and the numerous small plants producing miscellaneous chemical products held their standing fairly well in comparison with the preceding year; explosives, ammunition, fireworks and matches and the manufacture of soaps, washing compounds and toilet preparations showed slightly lower outputs. Employing upwards of 14,000 men, to whom 18·2 million dollars was paid in salaries and wages, the 462 plants reporting in the chemical industries of Canada in 1924 represented a capital investment of 124 million dollars and used materials costing 52·95 million dollars in the production of commodities having a selling value of 107·5 million dollars, creating a value added by manufacture amounting to 54·57 million dollars.

In 1919 chemicals and allied products imported into Canada amounted in value to 27·2 million dollars; in that year 82 per cent. of these purchases came from the United States, 13 per cent. from the United Kingdom, and 5 per cent. from other countries. In the four years since imports of chemicals and allied products into Canada have been valued at about a quarter of a billion dollars annually. The proportion of Canadian purchases from the United States has gradually decreased from 74 per cent. of the total in 1921 to 66 per cent. of the total in 1924. Imports from the United Kingdom in the same years have increased; 12 per cent. of the total for 1921 was imported from the United Kingdom and 17 per cent. of the total in 1924 was brought in from the same source. Imports from countries other than the United States and United Kingdom were greater in 1924 than in any previous year and amounted in all to 4·2 million dollars or 17 per cent. of the total importations of chemical products. Canada's exports of chemicals and allied products which totalled 28·5 million dollars in 1919 dropped in 1920 to 22·3 million dollars and in 1921 to the low point of 10·3 million dollars.

American Chemical Exports Increasing

EXPORTS of chemicals and allied products from the United States to foreign countries during the first quarter of 1925 reached a total value of 36,034,000 dols., and showed 11 per cent. increase over the corresponding period of last year according to official reports. This figure was also higher than that for any single quarter in 1924. Shipments of naval stores, paints and varnishes, explosives and perfumery and toilet preparations were all larger than during any quarter of the preceding year. Exports of pigments, paints and varnishes showed an 8 per cent. increase, and sulphur figures showed an increase of 33 per cent. in quantity and 50 per cent. in value over the corresponding period of last year. The figures were 125,000 tons, valued at 2,165,000 dols., and France, Germany, Australia, Spain and the U.K. were the leading consumers in the order named. Fertilisers at 238,000 tons were slightly under last year's figures, but ammonium sulphate showed the greatest decline—from 36,500 tons to 23,300 tons. Superphosphates showed a gain of 26 per cent. on quantity.

Industrial Chemicals and Explosives

Although the exports of industrial chemicals during the first three months of 1925, valued at 2,470,000 dols., showed but a slight change—a gain of one per cent.—as related to the corresponding period of 1924, shipments during March were higher than for any single month throughout 1924. Larger amounts of acids and anhydrides, aluminium sulphate, acetate of lime, bleaching powder, copper sulphate, dextrine, and formaldehyde were sent abroad during the present quarter than during the first quarter of 1924. The following table records the leading industrial chemicals exported in the first three months of 1924 and 1925:—

Items.	1925. January-March. Quantity. Lb.	1925. January-March. Value. Dols.	1924. January-March. Quantity. Lb.	1924. January-March. Value. Dols.
Acids and anhydrides ..	—	289,892	—	247,197
Ammonia and ammonium compounds ..	1,246,410	269,071	878,816	273,206
Dextrine ..	8,036,392	352,289	6,306,637	246,082
Sodas and sodium compounds ..	86,491,608	2,004,595	79,524,121	2,310,911
Caustic soda ..	23,586,623	711,733	23,659,092	731,641

In the explosives group increases were recorded with the exception of dynamite and total shipments reached 6,159,000 lb. Coal tar chemicals amounted to 2,642,000 dols., were 19 per cent. lower than last year, but a marked improvement on the preceding quarter. The decline, as in 1924, occurred in sales of benzol. Larger shipments of crude distillates other than benzol, tar, pitch, aniline oil, and salts, all other intermediates, dyes, medicinals, and photographic chemicals were made during the period under discussion. The outgoing shipments of coal tar colours, dyes, and stains in the first three months of 1925 amounted to 1,990,000 lb., valued at 554,000 dols.

Chemical Matters in Parliament

Fuel Oil and Coal Figures

Sir B. Chadwick (House of Commons, June 24), in reply to Mr. Clarry, gave the figures printed in the table below. He said that fuel oil had been taken at 250 gallons to the ton. It was estimated that, for steam-raising purposes, two tons of fuel oil would be equivalent to three tons of coal, but no such general formula could be given in the case of oil used in internal-combustion engines, the coal equivalent varying with different fuels and different types of engines. Other causes, however, besides the competition of oil have affected the consumption of coal in the last six years, and he was not prepared to furnish an estimate of the tonnage of coal replaced annually since 1919 by the use of fuel oil.

FUEL OIL.

	Imports.	Re-exports.	Shipped for use of Steamers in the Foreign Trade.	Estimates of British Production from Imported Crude Petroleum and Native Oils.	British Exports.	Available for use in United Kingdom.
	Thousand tons.	Thousand tons.	Thousand tons.	Thousand tons.	Thousand tons.	Thousand tons.
1913 ..	380·2	4·7	Not recorded.	3·8*	Not recorded.	Cannot be stated.
1919 ..	1,061·6	15·7		81·8		
1920 ..	1,391·1	23·0		75·5	3·1	
1921 ..	2,125·1	1·7		315·0	3·1	
1922 ..	1,570·5	24·2	565·3	634·1	151·8	1,463·3
1923 ..	1,455·0	5·6	887·4	944·0	171·7	1,334·3
1924 ..	1,542·3	16·6	1,007·9	1,318·8	223·6	1,613·0

* Does not include any estimate of British production from native oils.

COAL.

	Coal raised.	Exports.	Foreign Trade Bunkers.	Available for Domestic and Industrial uses, Coastwise Bunkers, etc.
	Thousand tons	Thousand tons	Thousand tons	Thousand tons
1913	287,430	73,400	21,024	193,006
1919	229,780	35,250	12,005‖	182,525
1920	229,532	24,932	13,840	190,760
1921	163,251*	24,661	10,926	131,098§
1922	249,607†	64,198	18,259	167,150
1923	276,001†	79,459‡	18,158‖	178,384
1924	267,118†	61,651‡	17,689	187,778

* Year of coal stoppage. † Excluding Ireland. ‡ Including exports to Irish Free State from 1st April, 1923: 1923, 1,485,000 tons; 1924, 2,472,000 tons. § Including imports, 3,434,000 tons.

Coal Conversion

Mr. A. Chamberlain (House of Commons, June 24), in reply to a question by Mr. Rennie Smith, said that the question of the more economical conversion of coal into heat, light, and power was receiving careful consideration, but he was not yet in a position to make any statement.

Mr. Mackinder asked whether he would attempt to dissuade the Press from stating that this method was an absolute failure.

Insecticide Dangers

Colonel Day (House of Commons, June 25) asked the Minister of Health whether he was aware that Bordeaux mixture (sulphate of copper and lime), containing a proportion of arsenic, was being used as an insecticide on apples; and, as these apples were frequently eaten by children before being cleaned, would he take such action as would secure the removal of any insecticide deposit before the apples were packed or sold for human consumption?

Mr. N. Chamberlain said that the matter had been under the observation of his Department for a number of years, but the quantities of arsenic which had been actually found on apples exposed for sale had been so minute as not to justify the institution of special restrictive measures.

Petrol Consumption

Colonel Ashley (House of Commons, June 29), in reply to a question by Mr. T. Williams, said that there was no reliable information as to the actual motor spirit consumption in this country. Trade returns showed imports for the year 1924 to be 422,310,541 galls. and the re-exports 43,104,491 galls. In these figures no account was taken of the production of home refineries.

Finsbury Technical College

The Duchess of Atholl (House of Commons, June 29), replying for the President of the Board of Education, said that he had received letters from various scientific bodies, including the Institution of Chemical Engineers and the Institute of Chemistry, asking that the decision shortly to close the Finsbury Technical College be reconsidered, but he had nothing to add to his previous answer.

Low Temperature Carbonisation

The Secretary for Mines, Colonel Lane-Fox (House of Commons, June 30), in reply to Mr. Paling, said that two cases of British firms applying for assistance to develop low-temperature carbonisation processes had been before the Trades Facilities Committee but he did not know with what results. He could not say without knowledge of the process whether he could recommend help to be given to applicants, but he hoped that any help they could give would be given.

Barking Electricity Station

High Steam Generation Efficiency

FROM a chemical engineering point of view two of the most striking features of the new Barking electricity station, the first section (100,000 kW) of which has recently been opened by the King, are the reheating of the steam and the high efficiency guarantees for the generation of the steam.

The modern principle of reheating consists essentially in taking steam out of a certain stage of the turbine, returning it to an additional boiler or superheater, raising it in temperature again to the original figure of superheat, and then sending the steam back to drive the rest of the turbine.

Full technical details with regard to Barking do not yet seem to be available, but the boiler pressure is 375 lb. per square inch, and the superheated steam temperature the very high figure of 725° F. The effect of reheating is, of course, to increase the efficiency of the steam consumption very considerably, and it is stated that the guarantee in this connection for the two larger "Parsons" steam turbines of 35,000 kW each on normal output, is 9·25 lb. of steam per kW.

With regard to the boiler plant, this consists of five "Babcock and Wilcox" boilers and five "Yarrow" boilers, all fired with mechanical stokers, two for each boiler, the total furnace width being 22 ft. In the case of the "Babcock" boilers chain grate stokers are fitted, whilst the "Yarrow" boilers have "Underfeed Type A" travelling grate stokers as supplied by Messrs. The Underfeed Stoker Co., Ltd. Each of these stokers is 18 ft. 5 in. long and 8 ft. 6 in. wide, having 313 square feet heating surface, whilst the installation includes "Yarrow" air heaters of 11,020 square feet heating surface, which will raise the temperature of the air delivered to the stokers to 400–500° F., corresponding to a final exit temperature of the flue gases to the chimney base of 325° F. The normal evaporation of each boiler is 68,000 lb. per hour actual at a temperature of 250° F., with an overload capacity of 50 per cent., that is, 102,000 lb. of water per hour.

The steam generation efficiency guarantee, calculated on the lower heating value of the coal, is no less than 88 per cent.—a remarkable figure, especially as the coal used is not of particularly good quality, being Northumberland slack of 11,000 B.Th.U. per pound.

Mechanical stoking has, of course, made amazing advances in the last two or three years, largely because of the keen competition of pulverised fuel firing, and we have now got to the stage when guarantees of over 86 per cent. can be given with both methods of firing, whilst on individual test runs under the latest conditions 92 per cent. efficiency has been obtained in both cases. It should be noted, however, that at Barking no modern suspended arches or water cooled tube side walls are fitted.

Canadian Gypsum Production Increasing

FINALLY revised statistics on gypsum production, as reported by the Dominion Bureau of Statistics at Ottawa, show that the quantity of Canadian gypsum sold during 1924 was appreciably higher than in the previous twelve months. The total production for the year was 646,016 tons, with a valuation of $2,208,108, as compared with 578,310 tons at $2,243,100 in 1923. The production was made up of lump, crushed, fine ground and calcined gypsum sold; there was also included the calcined gypsum used in the calcining plants for the production of wall plaster, wall board, alabastine and other gypsum products. The average values received by operators were as follows:—Lump, $1.81; crushed, $1.82; fine ground, $5.82; and calcined, $10.27 per ton. Compared with 1923, the imports remained constant, while the exports, principally crude gypsum, increased approximately 75,000 tons to a total of 477,462 tons.

From Week to Week

THE ADDRESS of the British Consulate-General at Milan is now Via Manzoni 5, Milano (2), Italy.

FIRE DESTROYED the paint, varnish, and glass works of Elders, Walker and Co., Ltd., of Gateshead, on Saturday, June 27.

MR. PERCY BEAN, JNR., son of Mr. P. Bean, analytical and consulting chemist of Manchester, has obtained his B.Sc. degree at Victoria University.

THE HONORARY DEGREE of Sc.D. has been conferred by Trinity College, Dublin, on Sir F. Gowland Hopkins, F.R.S., Professor of Biochemistry at Cambridge.

NO LESS THAN £160,000,000 CAPITAL is invested in our gas industry, according to Mr. D. Milne Watson, giving evidence before the Committee on Industry and Trade in London on Wednesday.

LORD LEVERHULME entertained a party of members of the Surveyors' Institution and Land Agents' Society, on Friday, June 26, when they inspected the Port Sunlight Soap Works, and Planters' Margarine Works.

A FATAL ACCIDENT occurred at the works of the British Dyestuffs Corporation, Ltd., at Huddersfield, on Saturday, June 27. Fred Mitchell, an ash wheeler, was removing hot ashes from a self-stoking boiler by means of a truck when he was buried under about 5 cwt. of red hot ashes.

ROCKEFELLER MEDICAL FELLOWSHIPS awarded by the Medical Research Council and tenable in the United States during 1925-26, include—Miss K. H. Coward, M.Sc., D.Sc., assistant in biochemistry, University College, London, and Mr. A. D. Ritchie, M.A., lecturer in Physiological Chemistry, Manchester University.

CHARGED WITH STEALING and receiving 17 aluminium drums, the property of A. Boake, Roberts and Co., Ltd., of Stratford, David Ross, dealer, was discharged at the Central Criminal Court. It was claimed that the drums were specially made for certain chemicals and that there were no others like them in the country. The defendant said that he bought them not knowing that they were stolen property.

A RESOLUTION RESISTING EMPLOYERS' DEMANDS for a general reduction of wages of young people was passed at a meeting of the executives of the Amalgamated Society of Dyers and Allied Trades in Manchester on Saturday, June 27. This decision means that the employers, to enforce their claims, will have to give three months' notice to terminate the present agreement. About 120,000 operatives in the north-west counties are affected by the decision.

TO BREAK THE BRITISH MONOPOLY OF CRUDE RUBBER definite steps have now been taken by the Rubber Association of America. Products will be standardised, the output of crude rubber will be further capitalised and the Dutch Government is to be approached with regard to Java and other Dutch possessions. The refusal of Great Britain to modify or rescind the Stevenson Act is credited by Americans with having forced up the price of rubber from 17 to 78 cents a pound during the last year.

THE POWER ALCOHOL SUB-COMMITTEE of the Unionist Agricultural Parliamentary Committee is obtaining evidence from abroad as to the manufacture of power alcohol from beet. A strong feeling exists that the growth of beet and its conversion into this form of fuel would not only be of great advantage to agriculturists in this country, but to industry generally. If the process is successful on the Continent, it is felt that it might be so in England, especially if similar assistance from the State is given for a few years, as in the case of the beet-sugar enterprise.

KOHLER'S, manufacturers of coal tar preparations, etc., of 133, Western Road, Brighton, have their works at 26, West Hill Road, Brighton, formerly the Brighton West Police Station. It appears that the Inland Revenue authorities insisted that Mr. Kohler should take the most stringent precautions, when storing his alcohol, against fire. He had, in consequence, some difficulty in finding a suitable place for his works, but finally bought the Brighton West Police Station, which was for sale. This proved satisfactory for his works, the alcohol being kept in the cells.

A QUESTION OF ALLEGED FUR DERMATITIS, claimed to have arisen through an inefficiently dyed fur, was investigated at Shoreditch County Court. Messrs. S. and M., Ltd., of 3 and 4, Newgate Street, E.C., sued Mr. H. Rappaport, of 34, Bethnal Green Road, London, wholesale furrier, for selling furs that were alleged to have caused a customer to contract dermatitis. The plaintiffs had paid the customer's claim and expenses previously. Dr. Alec Gordon (Hon. Secretary of the London Dermatological Society) gave evidence, and said that the hairs had been partially dyed. There was no colouring matter with any solvent, and no metallic dye. He tried every sort of chemical test, and found nothing which could have caused fur dermatitis. He said that the fur had been dyed with chemicals properly precipitated and fixed in the fur. It was when the dye was soluble that fur dermatitis was caused, owing to the heat of the body. The chemicals used for the dyeing might have acids and metallic salts, but if they had they would not have disappeared in the six months before his examination; they were irritants. Judgment was entered for the defendant with costs.

THE DEGREE OF DOCTOR OF SCIENCE has been conferred by Glasgow University upon Mr. A. N. Currie, A.I.C., F.C.S.

SIR GEORGE HADCOCK, director of Armstrong, Whitworth and Co., is to receive the honorary degree of D.Sc. from Durham University.

LEADING POLISH OIL COMPANIES are stated to be in negotiation with Vickers, Ltd., with a view to interesting British capital and increasing production.

MR. C. AINSWORTH MITCHELL, F.I.C., editor of *The Analyst* and an expert in the chemistry of inks, gave expert evidence in a King's Bench Division case in London last week.

THE LONDON UNIVERSITY statute governing the membership of Convocation has been so amended that all graduates who have attained the age of 21 years are now entitled to be registered as members of Convocation.

IMPORTS of coal tar dyes into the United States during May totalled 370,271 lb. This figure is less than that of any month this year. The goods came principally from Germany, with Switzerland a close second.

MR. E. BROTHERTON-RATCLIFFE, managing director of Brotherton-Ratcliffe and Co., Ltd., London, who returned last week from an American tour, left on Monday for Hamburg and will be away on business for about ten days.

IT IS REPORTED that the United Alkali Co. are transferring the fertiliser department of the Pilkington-Sullivan works at Widnes to the Wiggs works at Runcorn. This move is to be made with the idea of centralising the manufacture of this product, and more men will be employed.

THE LION ESSENCE AND CHEMICAL CO. (proprietor, S. George), who acquired the sole proprietorship of the Lion Essence and Chemical Co., Ltd., late of Guildford Road, Brighton, have opened up a factory at 100, Centurion Road, Brighton, and are the sole manufacturers of the Lion Brand specialities.

A CENTRAL MUNICIPAL LABORATORY is to be established by Montreal. The chemical laboratories are to be combined with a new laboratory for the analysis of road materials. Up to the present the examination of road materials has been done by private firms, and the city authorities expect to save about $15,000 annually by this new development.

A MILITARY POISON GAS SCHOOL is to be established at Utrecht. The War Minister declares that while the Dutch Government desires to identify itself with the proposals for the general prohibition of such modes of warfare, pending the conclusion of the convention it considers it should take all means necessary to protect its troops. The school will, it is stated, be designed for training and not for manufacturing purposes.

SATISFACTORY RESULTS are already recorded by several firms exhibiting at Wembley. Nobel Industries are officially stated to have had a most satisfactory six weeks. In the Chemical Section the general impression is that, while the firms depending solely upon sales to the public would benefit by greater numbers, the exhibitors putting forward serious propaganda are generally well pleased. The British Cyanides Co., Ltd., who show the new synthetic resin, are, we learn, quite satisfied with results to date.

THAT NO ADVISORY COMMITTEE would be set up by the Government to facilitate the administration of new silk and artificial silk in Manchester and Bradford was a statement made by the Shipping Merchants' Committee of the Manchester Chamber of Commerce on Tuesday. They claim that if the Government ever had any intention of promoting this committee the idea was now apparently abandoned. The decision was deplored by all sections of the trade. We learn as we go to press that an Advisory Committee will, after all, be set up.

PTOMAINE POISONING is decreasing, according to a statement by Mr. Neville Chamberlain in a Parliamentary debate. He stated that the deaths reported as due to this cause during the five years 1920 to 1924 were 32, 48, 22, 21 and 16 respectively. The proportion due to tinned foods was thought to be small. A draft of Regulations to give effect to the principal recommendations of the Departmental Committee on Preservatives and Colouring Matters in Foods had been published, and he was now considering the form in which the Regulations should be finally made.

A BOOKLET ON CONCRETE ROADS just issued by the British Portland Cement Association states that the danger of road dust is absent in concrete roads as the hard surface is almost incapable of disintegration. Tests have been made over various classes of roadway in the United States—which already possess 32,000 miles of all-concrete road—and figures quoted show that a great saving can be effected by concrete construction. Apart from the reduction in the cost of maintenance, considerable economy is provided for the vehicles using the road. The amount of pull necessary to keep a vehicle in motion after it has been started is considerably less on concrete than on any other form of road surface. This fact has an important bearing on the question of fuel economy. In one series of tests five two-ton trucks, fully loaded, were run repeatedly over various sections of road, and the results showed that a gallon of petrol averaged 5·78 miles on a road of loamy pit gravel, 9·48 miles on bituminous macadam, and 11·78 on concrete.

MR. W. TAYLOR has been appointed assistant lecturer in physics at Manchester University.

FRANCE HAS NOW SIGNED the protocol prohibiting the use of chemical warfare.

PRUSSIC ACID GAS was employed to exterminate a plague of clothes moths at Holywell Park, Wrotham, Kent, on Monday. The gas was given off from a powder form.

PROFESSOR F. G. DONNAN, of University College, London, has received the honorary degree of LL.D. from the University of Durham.

MR. T. ALYS, M.Sc., Ph.D., lecturer in physics at the Durham Colleges of Durham University, has been appointed Professor of Physics at Saskatchewan University.

A LABORATORY ON WHEELS is now maintained by the Government of Ohio. It tours the country to assist farmers with soil problems. Defective or exhausted soils are analysed and suitable fertilisers or crops suggested.

THE INQUIRY INTO the death of John R. Higginson, a process worker at Orr's zinc works, who died after a week's illness, was adjourned until July 29, at Widnes on Wednesday. There was a suspicion that death had resulted from the inhalation of arseniuretted hydrogen and a further inquiry was ordered.

THE AMALGAMATION of the Imperial Mineral Resources Bureau with the Imperial Institute took effect as from July 1, and it will now be known as the Mineral Resources Department of the Imperial Institute. All inquiries and correspondence in connection with the work of the bureau should be addressed to the Imperial Institute (Mineral Resources Department), South Kensington, London, S.W.7. The telephone number is Kensington 3798.

THE DIRECTORS OF THE BRITISH DYESTUFFS CORPORATION announce that it has not been possible in the time available to prepare and submit to the shareholders the accounts and the scheme of reconstruction referred to in the circular issued to shareholders on May 7 last; consequently they propose to adjourn the annual meeting, which has been called for July 8 next, in order to meet the requirements of the company's articles of association.

THE EFFECTS ON THE FRENCH FERTILISER TRADE of a new law have been summarised and the circular may be seen at the Department of Overseas Trade, 35, Old Queen Street, London, S.W.1. The chief characteristics are the suppression of the sale of fertilisers under condition that the price is to be fixed according to the result of analysis, and the tightening-up of the provisions of previous legislation requiring the seller of a fertiliser to furnish the buyer with all necessary information as to the nature and source of the fertiliser, the strength and origin of the fertilising elements which it contains, and their state of combination.

THE AIR MINISTRY ANNOUNCES that the Secretary of State for Air has appointed Mr. H. E. Wimperis to be Director, and Mr. D. R. Pye to be Deputy Director, of Scientific Research under the Air Ministry. Mr. Wimperis, who is 49 years of age, became, on its inception in 1915, head of the Royal Naval Air Service (now the Air Ministry) Laboratory at the Imperial College of Science, and has held that position continuously since. These appointments are made in pursuance of the policy by which the work of scientific research and technical development, which were formerly combined in one directorate, have been divided between two directorates, both of which, however, come under the supervision of the Air Member for Supply and Research.

RECENT TENDERS ACCEPTED include Northumberland Whenstone Co., Ltd., 2,500 tons of macadam at 23s. 2d. per ton; J. Richardson, 300 tons of rough macadam, 6s. per ton, both for Alnwick Council. Cambridge Instrument Co., Ltd., two CO_2 indicating and recording instruments, £117, for Bedford Town Council. Underfeed Stoker Co., pulverised full firing equipment, £1,970, for Brighton Town Council. New vertical gasworks retort, Woodall-Duckham and Co., £25,678, for Dumfermline Town Council. Disinfectants supply for Glasgow Corporation—Roxburgh, Morgan and Co., Ltd. Cement, Casebourne and Co., Ltd., 50s. 2d. per ton, for Middlesbrough Council. Oil separator in connection with Diesel plant, De Laval Chadburn Co., £213 5s. (recommended for acceptance), for Southend Town Council.

THERE WAS INAUGURATED last week at the Birmingham Electricity Supply Department the system of firing with pulverised coal in connection with new steam raising plant at the new generating station at Nechells. This is the first time this method has been adopted on large-scale lines in this country. The equipment consists of six special boilers, each of 5,400 square feet heating surface and fitted with superheaters of the convection type. Four of the boilers have steel tube economisers and two air preheaters. Steam is generated at 320 lb. per square inch, superheated to 700 deg. F. Each boiler has a normal evaporation of 35,000 lb. per hour, with an overload capacity of 42,000 lb. The coal as received contains 12 to 20 per cent. of total moisture, and has a calorific value when dry of 10,000 to 10,700 B.Th.U. There are four coal pulverisers, each one capable of reducing to the finest powder six tons of coal per hour. Separation of the pulverised fuel and elevation to the pulverised fuel storage bunkers are effected by a current of air continuously circulated in a duct system by the exhauster fan.

MR. B. WYLAM and Mr. S. Baker have been recommended for the degree of Ph.D. at Durham University.

MR. CHARLES RICHARD BLOXCIDGE, of "Bramcote," Alderbrook Road, Solihull, chairman of Samuel Thornley, Ltd., left £45,291.

A TANK EXPLODED in the T.N.T. department of Nobel's explosive factory at Stevenston, Ayrshire, when a squad of men were testing it on Monday. One man was killed and two were injured.

MR. E. J. PARRY, analytical chemist, is to be asked by Leeds Waterworks Committee to act as consultant in connection with water supply analyses.

THE TWENTY-FIFTH ANNIVERSARY of the Mond Nickel Co., Ltd., is to be commemorated by a dinner given by the chairman and directors of the company at the Savoy Hotel, London, on Thursday evening, July 9.

THE FIRST CONSIGNMENT DEPOT FOR DYES IN MOSCOW of the Russo-German concern, "Russgertorg," has been opened, according to Berlin reports. All the chief German dye companies have sent goods to the extent of 500,000 metric pounds.

APPLICATIONS ARE INVITED for the following appointments, on or before the dates mentioned:—A demonstrator in chemistry in the University of Aberdeen—The Secretary (August 8); a lecturer in chemistry, at the Portsmouth Municipal College—The Secretary, Offices for Higher Education, Municipal College, Portsmouth.

THE U.S. TARIFF COMMISSION is reported to be making a special study of the British control of the manufacture of certain series of new dyes suited to the dyeing of acetate silks. These dyes are said to produce bright, fast colours and are simple of applicationl whereas previous treatment of these silks has necessitated a specia, chemical process.

THE STAMPING OF ALL BRITISH GOODS with the name and place of origin is strongly urged in a statement issued by the National Union of Manufacturers this week. The Union is pressing for the introduction of an up-to-date Merchandise Marks Act and claims that at present goods are frequently marketed here at about the same prices as British equivalents and the purchaser has no opportunity of making sure of buying British goods.

THE FINAL REPORT of the recent committee set up by the Ministry of Health to inquire into the use of preservatives and colouring matters has not yet been published. From the draft regulations, however, it would appear that the use of certain coal tar dyes is to be excluded and also dye compounds of antimony, arsenic, lead, zinc, cadmium, mercury, chromium, and copper. The use of gamboge is also expected to be prohibited. Articles that may contain prescribed preservatives will be scheduled and strict rulings as to the declaration of the nature and quantity of the preservatives employed will be enforced.

A DIRECTOR OF A RUBBER RESEARCH INSTITUTE in the Malay States is required. The Institute is about to be created, and applicants should be under 45 and have proved administrative capacity and ability to conduct and direct scientific research. They must have first or second class honours in Natural Science of a British University or equivalent and should have had agricultural experience, preferably in rubber. The salary is the equivalent of £2,520-£140-£2,800 per annum and free quarters, and free passage for candidate and wife. Full particulars and necessary application form are obtainable from the Private Secretary (Appointments), Colonial Office, 38, Old Queen Street, Westminster, S.W.1. Forms must be returned by August 31.

UNDER A WINDING-UP ORDER made against The Comet Chemical Co., Ltd., 81, Guildford Street, London, W.C., the statutory meetings of the creditors and shareholders were held on Monday at 33, Carey Street, London, W.C. A statement of affairs showed liabilities £997, of which £247 were treated as unsecured and assets nil, with a deficiency of £2,747 with reference to the shareholders. The company was registered in August, 1906, with a nominal capital of £15,000 and was formed for the purpose of carrying on business as drysalters and importers of and dealers in chemicals. The business had previously been conducted by Charles Leigh at Waterloo Buildings, Manchester, under the style of the Comet Chemical Co. The issued capital was £2,732 in ordinary and preference shares, the greater portion of which were allotted as fully paid. The sole director of the company since December, 1917, had been Bertram Isaac Levin. The purchase consideration for the business which the company acquired was £1,500 payable in ordinary shares of the company, which was also to pay the vendor's liabilites which amounted to £378. The business was continued in Manchester until 1915, when it was sold to Victors, Ltd., for 3,150 £1 preference shares, and the only business afterwards transacted was dealing in certain machinery. In March, 1922, Mr. Alfred White was appointed receiver for the debenture holders of Victors, Ltd., and he obtained the winding-up order as a result of litigation. The meetings resulted in the liquidation remaining in the Official Receiver's hands.

Obituary

MR. CHARLES CRAMPTON, founder of C. Crampton and Sons, manufacturing chemists, of Lynn, Mass., aged 63. He was a Manchester man.

References to Current Literature

British

CEMENT.—Cement manufacture. J. Watson. *Ind. Chem.*, June, 1925, pp. 231–234.

SPECTROSCOPY.—Spectroscopy and its relation to chemistry. Part II. H. Dingle. *J.S.C.I.*, June 26, 1925, pp. 651–653.

SOILS.—Base exchange in relation to the problem of soil acidity. G. W. Robinson and R. Williams. *Trans. Faraday Soc.*, April, 1925, pp. 586–593.

Base exchange in soils. D. J. Hissink. *Trans. Faraday Soc.*, April, 1925, pp. 551–566.

MERCURATION.—The mercuration of aromatic substances. Part I. Toluene. S. Coffey. *Chem. Soc. Trans.*, May, 1925, pp. 1029–1032.

EMULSIONS.—The colloid chemistry of technical emulsions. W. Clayton. *Ind. Chem.*, June, 1925, pp. 223–225.

Viscosity of reversible emulsions. S. S. Joshi. *Trans. Faraday Soc.*, April, 1925, pp. 512–524.

EVAPORATION.—The kinetic theory of evaporation. D. B. Macleod. *Trans. Faraday Soc.*, April, 1925, pp. 525–543.

ANALYSIS.—A new method for determining butter fat. G. Van B. Gilmour. *Analyst*, June, 1925, pp. 272–279.

COMBUSTION.—The combustion of carbon monoxide mixtures. J. H. Crowe and A. H. Newey. *Phil. Mag.*, June, 1925, pp. 1112–1131.

TAUTOMERISM.—Ring-chain tautomerism. Part XIV. The structure of Balbiano's acid. E. Rothstein, A. Stevenson and J. F. Thorpe. *Chem. Soc. Trans.*, May, 1925, pp. 1072–1080.

SORPTION.—"Activated" graphite as a sorbent of oxygen. D. H. Bangham and J. Stafford. *Chem. Soc. Trans.*, May, 1925, pp. 1085–1094.

CATALYSIS.—The mechanism of catalytic decomposition. F. H. Constable. *Roy. Soc. Proc.*, June, 1925, pp. 355–378.

United States

LEACHING.—Technology of leaching and extraction. A. W. Allen. *Chem. Met. Eng.*, June, 1925, pp. 561–565.

MAGNESIUM.—Production of metallic magnesium from fused salts. W. G. Harvey. *Chem. Met. Eng.*, June, 1925, pp. 573–576.

ACIDS.—Selenic acid and the selenates. V. Lenher and E. J. Wechter. *J. Amer. Chem. Soc.*, June, 1925, pp. 1522–1523.

The C_4-saccharinic acids. Part III. The preparation of *dl*-1 : 2-dihydroxy-isobutyric acid and a study of some of its derivatives. J. W. E. Glattfield and L. P. Sherman. *J. Amer. Chem. Soc.*, June, 1925, pp. 1742–1751.

PAINTS.—Some special properties of "aluminium paint." J. D. Edwards and R. I. Wray. *J. Ind. Eng. Chem.*, June, 1925, pp. 639–640.

EXPLOSIONS.—Effect of nitrogen and carbon dioxide dilutions on explosion limits of acetone and methanol and their mixtures. H. Crouch and E. K. Carver. *J. Ind. Eng. Chem.*, June, 1925, pp. 641–642.

NITRILES.—Some reactions of δ-ketonic nitriles. C. F. H. Allen. *J. Amer. Chem. Soc.*, June, 1925, pp. 1733–1741.

GELATIN.—Applied science in gelatin manufacture. C. Tyler. *Chem. Met. Eng.*, June, 1925, pp. 553–556.

The influence of hydrogen-ion concentration on the optical rotation of gelatin. R. H. Bogue and M. T. O'Connell. *J. Amer. Chem. Soc.*, June, 1925, pp. 1694–1697.

WASTE RECLAMATION.—Turning calcium sulphate wastes into valuable products. G. L. Montgomery. *Chem. Met. Eng.*, June, 1925, pp. 547–551.

VITAMINS.—Quantitative experiments upon the occurrence and distribution of vitamin A in the body, and the influence of the food. H. C. Sherman and L. C. Boynton. *J. Amer. Chem. Soc.*, June, 1925, pp. 1646–1653.

The bodily store of vitamin A as influenced by age and other conditions. H. C. Sherman and L. B. Storms. *J. Amer. Chem. Soc.*, June, 1925, pp. 1653–1657.

GLYCEROL.—Vapour pressures of glycerol-water and glycerol-water-sodium chloride systems. A. R. Carr, R. E. Townsend and W. L. Badger. *J. Ind. Eng. Chem.*, June, 1925, pp. 643–646.

CARBON MONOXIDE.—The hazard of carbon monoxide to the public and to industry. S. H. Katz. *J. Ind. Eng. Chem.*, June, 1925, pp. 555–557.

French

FUEL.—Actual state of the manufacture of synthetic petrol and acetylene. A. Folliet. *L'Ind. Chim.*, June, 1925, pp. 247–250.

ACIDS.—Evolution of the manufacture of sulphuric acid by the chamber process in recent years. Part VII. De Jussieu. *L'Ind. Chim.*, June, 1925, pp. 242–246.

On arylaminonaphthoquinones. Arylaminooxynaphthalene sulphonic acids. R. Lantz and A. Wahl. *Compt. rend.*, June 2, 1925, pp. 1668–1670.

HYDROCARBONS.—Methylphenylbutadeine. C. Prévost. *Compt. rend.*, June 15, 1925, pp. 1851–1853.

SILICATES.—An artificial magnesium silicate. A. Damiens. *Compt. rend.*, June 15, 1925, pp. 1843–1845.

ANALYSIS.—The estimation of carbon monoxide and dioxide. P. Lebeau and P. Marmasse. *Compt. rend.*, June 15, 1925, pp. 1847–1850.

New method for the diagnosis and estimation of cobalt by spectroscopy and chromoscopy. G. Denigès. *Compt. rend.*, June 8, 1925, pp. 1748–1750.

Estimation of carbon monoxide by the blood method. M. Nicloux. *Compt. rend.*, June 8, 1925, pp. 1750–1753.

AMMONIA.—Comparison between the various methods for the direct synthesis of ammonia. Part VII. P. Firmin. *L'Ind. Chim.*, June, 1925, pp. 255–258.

RESINS.—The condensation of formaldehyde with phenols H. Barthélemy. *Rev. Prod. Chim.*, June 15, 1925, pp. 361–364.

HYDROGENATION.—Hydrogenation of the triple bond. Formation of *cis*-ethylenic compounds. M. Bourguel. *Compt. rend.*, June 8, 1925, pp. 1753–1755.

UREAS.—Ureas of pyrazolines. R. Locquin and R. Heilmann. *Compt. rend.*, June 8, 1925, pp. 1757–1760.

COMPLEX COMPOUNDS.—Stannic iodide complexes. V. Auger and T. Karantassis. *Compt. rend.*, June 15, 1925, pp. 1845–1847.

New iron complexes of the triazines. P. Pascal. *Compt. rend.*, June 15, 1925, pp. 1850–1851.

KETONES.—Acyclic δ-diketones. Transformation into pyridine derivatives. E. E. Blaise and M. Montagne. *Compt. rend.*, June 8, 1925, pp. 1760–1762.

OPTICALLY ACTIVE COMPOUNDS.—The rotatory power of certain camphor derivatives. A. Haller and R. Lucas. *Compt. rend.*, June 15, 1925, pp. 1803–1806.

Contribution to the study of the rotatory power and dispersion in the terpene series. M. Pariselle. *Compt. rend.*, June 15, 1925, pp. 1832–1833.

German

GASES.—Electrical purification of gases. Dr. Gruhl. *Z. angew. Chem.*, June 25, 1925, pp. 565–568.

OXIDATION.—Autoxidation of ketenes. H. Staudinger, K. Dyckerhoff, H. W. Klever and L. Ruzicka. *Ber.*, June 10, 1925, pp. 1079–1087.

ALKALOIDS.—Preparation of monobrom- and monochlor-codein and their behaviour on catalytic reduction. E. Speyer and H. Rosenfeld. *Ber.*, June 10, 1925, pp. 1110–1113.

The action of thionyl chloride on codein and its isomers. E. Speyer and H. Rosenfeld. *Ber.*, June 10, 1925, pp. 1113–1116.

ORGANO METALLIC COMPOUNDS.—Organo metallic bases. F. Hein and H. Meininger. *Z. anorg. u. allg. Chem.*, June 15, 1925, pp. 95–116.

OXIDES.—Preparation and properties of high-melting lower oxides. E. Friederich and L. Sittig. *Z. anorg. u. allg. Chem.*, June 15, 1925, pp. 127–140.

ACIDS.—The synthesis of *m*-dioxy-cinnamic acid. F. Mauthner. *J. prakt. Chem.*, June, 1925, pp. 125–128.

Patent Literature

Abstracts of Complete Specifications

234,533. Hydroxy-Anthraquinone Derivatives, Manufacture of. J. Thomas, L. J. Hooley and Scottish Dyes, Ltd., Murrell Hill Works, Carlisle. Application date, January 26, 1924.

The process is particularly for the production of chlorquinizarine. Quinizarine has been obtained by condensing phenol-sulphonic acid with phthalic anhydride and hydrolising, or by condensing parachlorphenol with phthalic anhydride. The object is to avoid the use of the expensive parachlorphenol, and it has been found that hydroxyanthraquinone derivatives can be obtained by the condensation of phthalic anhydride with orthochlorphenol. In an example, a mixture of 94 per cent. sulphuric acid, phthalic anhydride, orthochlorphenol, and boric acid, is heated gradually to 200° C., and then cooled, and boiled with water, yielding a mixture of hydroxyanthraquinones and chlorinated hydroxyanthraquinones. This may be separated into two portions, 2 : 3-chlorhydroxyanthraquinone, which is soluble in ammonia, and another portion which gives fast orange yellow shades on cellulose acetate. The separation is effected by solution in ammonia. Another example is given of an alternative method of obtaining the above mixture, and also an example describing the preparation of chlorinated hydroxyanthraquinone, principally chlorquinizarine, from 2 : 4-dichlorphenol.

234,564. Extraction of Wax, Liquid Hydrocarbons and other Bodies from Coal, Peat, Bituminous Slate, and Similar Substances. H. Novák, 1156, Delnicka, Prague VII, Czechoslovakia, and J. Trebicky, 8, Chotkova, Prague III, Czechoslovakia. Application date, March 6, 1924.

The process is for obtaining hydrocarbons from coal, peat, etc., by treating with hydrogenated products of naphthalene and phenol, particularly tetrahydronaphthalene, decahydronaphthalene, and hexahydrophenol. It has been found that tetrahydronaphthalene has a very great solvent power for substances ranging from peat to anthracite, and examples are given showing an extraction of 16·4 per cent. from Bohemian lignite, and 15 per cent. from Silesian coal. A further extraction can be obtained from the residue by increasing the pressure; thus, at a pressure of 8 atmospheres and a temperature of 300° C., a further 37 per cent. was obtained from the residue from lignite. The extract yielded 25 per cent. liquid hydrocarbons, 0·8 per cent. of carbon acids, 3 per cent. of phenol, and 8·5 per cent. bituminous substances. By increasing the pressure to 20 atmospheres and temperature to 440° C., 75 per cent. of the lignite can be dissolved, the extract yielded 40 per cent. liquid neutral oils, 24 per cent. solid hydrocarbons (montan wax), and 22 per cent. bituminous substances. The extract is separated from the solvent by distillation in vacuo by superheated steam. The extract may be distilled until coke is obtained, and the distillate may be treated in the same manner as crude oil, or it may be separated according to its solubility in various solvents, or the whole extract may be subjected to cracking.

234,569. Triarylmethane Dyes, Manufacture of. W. Carpmael, London. From Farbenfabriken vorm. F. Bayer and Co., Leverkusen, near Cologne, Germany. Application date, March 13, 1924.

The condensation of alkylated diamino-benzhydrol with α-hydroxynaphthoic acid and its sulpho-derivatives is known, and in this invention the sulpho-derivatives employed are 1 : naphthol-2-carboxylic-7-sulphonic acid and 1-naphthol-2-carboxylic-4 : 7-disulphonic acid. The leuco compound so obtained is oxidised, yielding dyes which are suitable for dyeing chromed wool, and for mordanting after dyeing and for printing with the aid of chromium mordants. An example is given of the condensation of 1-naphthol-2-carboxylic 7-sulphonic acid and tetramethyl diamino benzhydrol, and the oxidation of the leuco acid. The product gives reddish-blue shades on wool. Reference is directed in pursuance of Section 7, Sub-section 4, of the Patents and Designs Acts of 1907 and 1919, to Specification No. 14,621/1890.

234,585. Potassium Carbonate, Process for the Production of. H. Klopstock and W. Neumann, Aussig-on-Elbe, Czechoslovakia. Application date, April 1, 1924.

When potassium carbonate is prepared from caustic potash by treating with carbon dioxide until saturated, the resulting potassium carbonate solution contains all the impurities of the caustic potash. In this invention, a saturated solution of caustic potash is treated with carbon dioxide, so that only a part is converted into potassium carbonate, in which case the degree of purity of the product depends on the proportion of hydroxide which is converted. When carbon dioxide is passed into concentrated caustic potash solution, potassium carbonate at first separates out, as it is only slightly soluble in hydroxide. After 40 to 45 per cent. of the hydroxide has been converted into carbonate, the solubility of the potassium carbonate increases until all the carbonate is dissolved, when the reaction is complete. The treatment with carbon dioxide is stopped when the precipitated potassium carbonate just begins to re-dissolve, and the carbonate is then separated from the liquor and washed. The treatment is effected at 10 to 15° C. The liquor is then concentrated by evaporation, or by adding caustic potash, and used again. The content of impurities, particularly potassium chloride, chlorate, and sulphate, and sodium carbonate, increases continuously, but does not effect the precipitation of pure potassium carbonate. Potassium carbonate of lower purity can be obtained by continuing the treatment with carbon dioxide beyond the point indicated above.

234,677. Therapeutic Compound, Manufacture of. The Wellcome Foundation, Ltd., 67, Holborn Viaduct, London, E.C.1, and W. H. Gray, 6, King Street, Snow Hill, London, E.C.1. Application date, August 12, 1924.

The process is for the preparation of a stable derivative of para-amino-phenyl-stibinic acid which is readily soluble in water. Sodium *p*-acetyl-amino-phenyl-stibinate is heated with a 5 per cent. solution of caustic soda till hydrolysis is complete. The liquid is filtered, excess of acetic acid is added to the filtrate, and the precipitated *p*-amino-phenyl-stibinic acid is filtered, washed with water, and dissolved in caustic soda and glucose. The mixture is allowed to stand, neutralised with hydrochloric acid, and poured into alcohol. The precipitated sodium *p*-amino-phenyl-stibinic glucoside is washed with alcohol. It has the formula $_{36}H_{49}O_{22}N_3Sb_3Na$.

234,681. Dyestuffs of Indigo Tint, Manufacture of. Soc. of Chemical Industry in Basle, Switzerland. International Convention date, July 17, 1924. Addition to 199,360.

Specifications Nos. 199,360 and 210,006 (see The Chemical Age, Vol. IX, p. 211 and Vol. X, p. 202) describe the production of sulphurised dyestuffs by reducing the indo-phenol from nitroso-phenol and carbazol, and subsequent treatment of the leuco compound thus obtained with sulphur at a high temperature in the presence of benzidine. In this invention, the sulphurising operation is facilitated by adding to the mixture of leuco compound, sulphur, and benzidine, a substance such as sodium chloride, sulphate, or carbonate, which prevents sintering of the mixture. The quantity of sulphur is thus reduced, and the dyestuff obtained is practically pure without further treatment. The dyestuff gives blue tints on cotton, having a reflection similar to indigo.

234,735. Diatomaceous Earth, Treatment of. F. W. Golby, London. From The Celite Co., 1135, Van Nuys Building, Los Angeles, Cal., U.S.A. Application date, December 28, 1923. Addition to 229,021.

Specification No. 229,021 (see The Chemical Age, Vol. XII, p. 280), describes the calcining of a finely divided mixture of diatomaceous earth and a salt of an alkali metal to increase the effectiveness of the diatomaceous earth as a filter-aid and adsorptive agent. In this invention, diatomaceous earth of sufficient purity to be used in its untreated state as a filtering material is calcined at 1800° F. for 15 minutes in a muffle furnace or rotary kiln. The product after calcination does not require milling to reduce it to a fine state of division,

disintegration in a fan or beating machine being sufficient. The product has increased efficiency as filtering material and as a dehydrating or de-emulsifying agent for emulsions of petroleum or other oils.

NOTE.—Abstracts of the following specifications which are now accepted, appeared in THE CHEMICAL AGE when they became open to inspection under the International Convention :—212,914 (Agoleum Ges.), relating to preparation of stable colloidal solutions of silver and mercury, see Vol. X, p. 523 ; 212,936 (Compagnie Nationale de Matières Colorantes et de Produits Chimiques), relating to manufacture of black vat dyestuffs, see Vol. X, p. 523 ; 223,596 (Farbenfabriken vorm. F. Bayer and Co.), relating to dyestuffs of the pyrone series, see Vol. XI, p. 669 ; 226,217 (British Thomson-Houston Co., Ltd.), relating to extraction of metals and compounds from ores and impure materials, see Vol. XII, p. 184.

International Specifications not yet Accepted

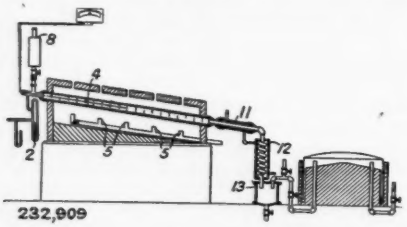
232,620. DYES. Soc. of Chemical Industry in Basle, Switzerland. International Convention date, April 20, 1924. Addition to 207,162.

Specification 207,162 (*see* THE CHEMICAL AGE, Vol. X, p. 101) describes the production of azo dyes by coupling an *o*-diazonaphthol with 1-oxy-naphthalene-8-sulphonamide. This is now extended to the use of any *o*-oxydiazo compound with any oxynaphthalene-sulphonamide. A number of diazo components and coupling components are given, *e.g.*, 1-amino-2-naphthol-4-sulphonic acid and 1-oxynaphthalene-4- or -5-sulphonamide, and the production of chromium and copper compounds is described.

The oxynaphthalene-sulphonamides are obtained from the corresponding naphthol-sulphonic acids by acidylating the OH group, converting the sulpho group into the sulphochloride and then into the sulphonamide group, and then eliminating the acidyl group.

232,909. STYROLENE AND ITS HOMOLOGUES. Naugatuck Chemical Co., Elm Street, Naugatuck, Conn., U.S.A. Assignees of I. Ostromislensky, 561, West 58th Street, New York, and M. G. Shepard, 851, West End Avenue, New York. International Convention date, April 24, 1924.

Ethyl benzene and its homologues such as xylol, *o*-methyl ethyl benzol, *p*-methyl-ethyl benzol, 1 : 3 : 5-dimethyl ethyl benzol, or diethyl benzol are heated to 400°–700° C., and the reaction $Ar.CH_2CH_3 = Ar.CH.CH_2 + H_2$ takes place. An inclined baffle tube 4 is heated by gas burners 5, and the hydrocarbon passes through it from a vessel 8, together with



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carbon dioxide, steam or nitrogen which enters at 2. The gases pass through condensers 11, 12, and the condensate collecting in vessel 13 is distilled with steam to separate styrolene from tarry products. The styrolene may be heated to 180°–200° C. with the addition of benzoyl peroxide to polymerize it.

Alternatively, homologues of benzol having more than two carbon atoms in the side chain are heated to 500°–700° C. ; or cinnamic acid and its homologues such as *o*- or *p*-methyl cinnamic acids are heated to 250°–650° C. excluding the range 300°–500° C. Polymerization of styrolene and its homologues is prevented by adding trinitrobenzol, quinone, mononitronaphthalene, trinitrotoluol, nitrobenzol, dinitrobenzol, or picramide, below 170° C. ; above that temperature polymerization is accelerated.

232,958. PHENOL-SULPHUR COMPOUNDS AND MORDANTS. Akt.-Ges. für Anilin Fabrikation, Treptow, Berlin. International Convention date, April 24, 1924.

The resinous substances obtained by treating phenols with sulphur chloride are heated with phenol-sulphonic acids. Colourless products are obtained, suitable for use as mordants for basic dyestuffs.

233,316. GRANULATING SODIUM SULPHIDE, ETC. Chemische Fabriken Kunheim and Co., Akt.-Ges., 10, Reichstagsufer, Berlin. International Convention date, May 1, 1924.

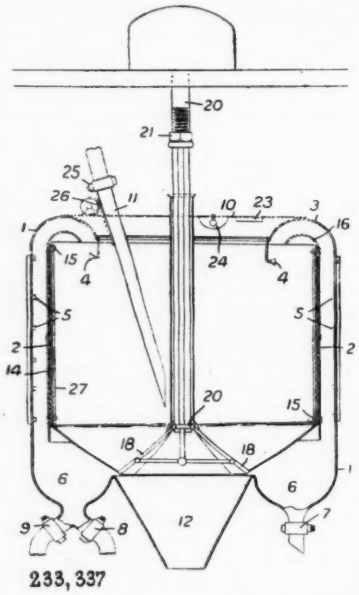
Sodium sulphide, sodium bisulphate, caustic alkali, etc., can be obtained in small pieces by allowing the molten substance to fall on to metal, ebonite, or celluloid plates treated with vaseline to prevent adhesion, and maintained below the melting point of the substance.

233,318. SULPHITE CELLULOSE. A. Peetz, 27, Grüner Weg, Darmstadt, Germany. International Convention date, April 30, 1924.

In the bisulphite process for producing cellulose, the pressure in the boiler is lowered to the required amount by discharging a part of the lye. The quantity of high pressure steam used is thereby reduced.

233,337. CENTRIFUGAL MACHINES. J. J. Ragg, Lantoka, Fiji. International Convention date, April 30, 1924.

A centrifugal machine for treating sugar solutions has an outer tank 1 with curved rim 3 enclosing a basket 2 with a similar rim 16. Sprayers 4, 5 are provided on the tank 1, directed against the filtering surface, and discharge valves 7, 8, 9 are provided on the annular portion 6. The feed pipe



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11 is longitudinally adjustable according to the depth of deposit in the basket. The latter is of perforated metal, and has on its inner side layers of fine gauze and filter cloth. Two filter cloths enclose a layer of sand, calcium phosphate, felt, etc., to prevent access of the deposited material to the inner filter cloth. Discharge doors 18 are provided in the bottom for the solid material, and the liquid is drawn off through valve 7. To clean the filter, the valve 7 is closed, and steam and hot water are injected through the sprayers 4, 5. The liquid is drawn off through valve 8, and the outer filter cloth removed so that the inner cloth can be sprayed from each side.

LATEST NOTIFICATIONS.

235,828. Process of liquefying carbon. Melamid, Dr. M. June 17, 1924.

235,844. Manufacture of zinc oxide. New Jersey Zinc Co. June 17, 1924.

235,860. Process for the manufacture of fertilisers and the products obtained thereby. Rhenania Verein Chemischer Fabriken Akt.-Ges. June 23, 1924.

235,862. Manufacture of new dyestuffs. Soc. of Chemical Industry in Basle. June 17, 1924.

235,864. Process for the preparation of derivatives of organic arsenical compounds. Deutsche Gold- Und Silber-Scheideanstalt Vorm, Roessler. June 18, 1923.

235,867. Process for preparing metaldehyde. Elektrizitätswerk Lonza. June 23, 1924.
235,877. Manufacture of new intermediate products of the anthracene series and of dyestuffs therefrom. Soc. of Chemical Industry in Basle. June 21, 1924.
235,883. Process for making allium preparations. Sandoz Chemical Works of Basle. June 17, 1924.
235,888. Process of treating rubber latex and products prepared thereby. American Rubber Co. June 18, 1924.
235,914. Art of moth proofing. Larvex Corporation. June 21, 1924.
235,915. Moth-proofing composition. Larvex Corporation. June 21, 1924.
235,916. Centrifugal separators for separating solids from liquids. Laughlin Filter Corporation. June 21, 1924.
235,919. Manufacture of halogenated vat dyestuffs of the anthraquinone series. Chemische-Fabrik Griesheim-Elektron. June 20, 1924.

Specifications Accepted with Date of Application

211,488. Sodium sulphide, Manufacture of. H Freeman, and Canada Carbide Co., Ltd. February 14, 1923.
214,242. Artificial resins, Manufacture of. Soc. of Chemical Industry in Basle. April 9, 1923.
215,769 and 219,299. Azo-dyestuffs, Manufacture of. Farbenfabriken vorm. F. Bayer and Co. May 7, 1923, and July 18, 1923.
221,229. Synthesis of ammonia, Methods of and apparatus for. Synthetic Ammonia and Nitrates, Ltd. September 1, 1923.
222,486. Zirconium compounds, Manufacture of pure. Deutsche Gasgluhlicht-Auer Ges. September 24, 1924.
226,819. Leucite and other potassium and sodium silicates, Process of treating—with lime for recovering potassium or sodium aluminates. F. Jourdan. December 28, 1923.
227,081. Intimate mixture between gases and liquids, Apparatus for producing. Farbenfabriken vorm. F. Bayer and Co. January 4, 1924. Addition to 199,718.
227,405 and 229,236. Gases and the like, Treatment of. E. Urbain. January 9 and February 13, 1924. Additions to 218,974.
232,189. Aluminium, Electrolytic production of. Aluminum Co. of America. April 10, 1924.
235,247. Dyestuffs or intermediates of the anthraquinone series, Production of—and dyeing thereby. B. Wylam, J. Thomas, and Morton Sundour Fabrics, Ltd. December 12, 1923.
235,252. Indigoid vat dyestuffs containing sulphur, Manufacture of. O. Y. Imray. (*Farbwerke vorm. Meister, Lucius, and Brüning.*) January 28, 1924.
235,301. Gases, Extraction of solid particles or dust from. T. W. S. Hutchins and J. Swinburne. March 11, 1924.
235,334. Azo dyestuffs, Manufacture of. British Dyestuffs Corporation, Ltd., and H. H. Hodgson. April 1, 1924.
235,346. Metallurgical furnaces. B. Talbot. April 24, 1924.
235,375. Ovens for the distillation of coal and other material. H. Wade. (*A. Streppel.*) May 28, 1924.
235,380. Crude dipentene from crude rubber, Process for the manufacture of—and for the recovery of liquid rubber. L. M. K. Bamber and P. M. K. Bamber. June 5, 1924.
235,281. Paints, varnishes and coating compositions and the like, Manufacture of. L. M. K. Bamber and P. M. K. Bamber. June 5, 1924.
235,427-8. Water gas, Process and apparatus for the manufacture of. T. F. Holden. September 3, 1924.

Applications for Patents

Allen-Liversidge, Ltd. Method of treating residue from manufacture of acetylene gas. 16,293. June 24.
Allen-Liversidge, Ltd. Manufacture of lime. 16,294. June 24.
American Cellulose and Chemical Manufacturing Co., Ltd., and British Celanese, Ltd. Treatment of yarns, etc. 16,606. June 27.
Badische Anilin-and Soda-Fabrik and Johnson, J. Y. Production of dry gases. 16,082. June 22.
Badische Anilin-and Soda-Fabrik and Johnson, J. Y. Manufacture of a calcium-nitrate fertiliser. 16,083. June 22.
Buchan, N. Obtaining pure gum from crude gum materials. 16,534. June 26. (New Zealand, July 23, 1924.)
Chemische Fabrik Griesheim-Elektron. Manufacture of halogenated vat dyestuffs. 16,144. June 22. (Germany, June 20, 1924.)
Classen, A. Manufacture of cellulose-containing solutions. 16,590. June 27.
Demann, W. Hydrogenation of tar oils. 16,523. June 26. (Germany, June 30, 1924.)
Dreyfus, H. Production, etc. of aliphatic compounds. 16,503, 16,504. June 26.
Farbwerke vorm. Meister, Lucius, and Brüning and Imray, O. Y. Manufacture of dyestuffs. 16,305. June 24.
Farbwerke vorm. Meister, Lucius, and Brüning. Manufacture of vat dyestuffs. 16,145. June 22. (Germany, August 13, 1924.)
Ketoid Co. Manufacture of ketens. 16,095. June 22. (United States, July 22, 1924.)
Ketoid Co. Method of making acetylsalicylic acid. 16,099. June 22. (United States, July 22, 1924.)
Ketoid Co. Acetic anhydride, etc. 16,118. June 22. (United States, July 22, 1924.)
Larvex Corporation. Art of moth-proofing. 16,109. June 22. (United States, June 21, 1924.)
Larvex Corporation. Moth-proofing composition. 16,110. June 22. (United States, June 21, 1924.)
Larvex Corporation. Moth-proofing composition. 16,326. June 24. (United States, June 24, 1924.)
MacGregor, J. Apparatus for extraction of oils, resins, etc. 16,446. June 25.
Minerals Separation, Ltd., Minerals Separation, Ltd., and Moulden, J. C. Concentration of ores. 16,140. June 22.
Moeller, J. F. L. Coking and distillation of carbonaceous materials. 16,349. June 25.
Parker, C. H. Distillation of coal, etc. 16,061, 16,062, 16,063, 16,064. June 22.
Scott and Co., Ltd., E. Apparatus for extraction of oils, resins, etc. 16,446. June 25.
Stephenson, A. Method of treating residue from manufacture of acetylene gas. 16,293. June 24.
Stephenson, A. Manufacture of lime. 16,294. June 24.

"Titanium Whites"

Some new white pigments called "titanium whites," which were put on the market for the first time a few years, ago seem to have now established themselves as staple articles of commerce, and in the opinion of Mr. H. A. Leverin, of the Canadian Mines Department staff, who, in 1924, investigated their production and use in the United States, they promise to become of very considerable commercial importance.

Three grades of titanium white are now being manufactured and sold in the United States under the trade name Titanox A, B and C. The "A" grade is essentially pure titanic acid (TiO_2), which finds a number of industrial applications, but is debarred by its high cost from general use as a paint pigment. The "B" and "C" grades, which are composite pigments, are commercially the more important. Titanox "B" consists of about 25 per cent. titanic acid (TiO_2) and 75 per cent. precipitated barium sulphate; Titanox "C" of 28 to 35 per cent. titanic acid and 65 to 72 per cent. calcium sulphate. Generally similar grades of titanium white (Kronos brand) are put on the European market by Norwegian manufacturers.

In view of the commercial success that has attended the establishment of titanium white industries in Norway and the United States, the question of the possibility of establishing a similar industry in Eastern Canada, where all the necessary raw materials are readily available, should have considerable interest for industrialists on the look out for new opportunities. Large deposits of cheaply minable ilmenite carrying 35 to 40 per cent. of titanic acid are easily accessible from tidewater on the north shore of the St. Lawrence River, in the province of Quebec; workable deposits of barytes occur in Nova Scotia, Ontario, and Western Quebec; seaborne Nova Scotian coal, as well as barytes, is available; and electric power is abundant and cheap.

Alleged Water Pollution

On Friday, June 26, at the Chancery Court in Manchester, at the trial of an action brought by Thomas Walton, trading as Walton and Murdoch, at Medlock Vale Bleachworks, Clayton Bridge, against the Clayton Aniline Co., Ltd., Mr. J. H. Cunliffe, K.C., opened the case for the defendants.

For the plaintiff several eminent chemists and experts in bleaching problems have been called in order to establish that from a tip on which chemical refuse from the Clayton company's works was deposited colouring matter drained off into the Lumb Brook, and, being in solution, was not removed by filtration before the water was used in bleaching processes. Discoloration of cloth was attributed to this cause.

Mr. Cunliffe said that of all actions for water pollution of which he was cognisant this was the most extraordinary. It was born in an ecstasy of alarm and apprehension and had carried on its rickety and miserable existence in a vain attempt to explain its premature birth. In the face of the admissions made by the plaintiff's witnesses no court would grant an injunction, because no damage had been proved, and the fear of what was going to happen was without justification.

Previous reports have appeared in The Chemical Age of May 30 and June 6.

London Chemical Market

The following notes on the London Chemical Market are specially supplied to THE CHEMICAL AGE *by Messrs. R. W. Greeff & Co., Ltd., and Messrs. Chas. Page & Co., Ltd., and may be accepted as representing these firms' independent and impartial opinions.*

London, July 3, 1925.

THERE has been a somewhat brighter feeling in the market during the past week and in some directions considerable activity is reported.

With one or two exceptions prices are steady in spite of the collapse of the franc.

Export demand is poor on the whole.

General Chemicals

ACETONE stocks are very light and as makers are very dissatisfied with the present level of prices an improvement may be looked for.

ACID ACETIC is in fair demand. The prices of £39 per ton for 80% technical and £40 per ton for 80% pure can be shaded for important quantities.

ACID CITRIC is uninteresting. The market is controlled by stock realisations. Price nominally 1s. 5d. per lb.

ACID FORMIC is in fair demand at £48 to £49 per ton for 85%.

ACID LACTIC is rather quieter but the price is very firm at £43 per ton for 50% by weight.

ACID OXALIC is rather quiet. Second-hand stocks are nearly exhausted and an advance is expected.

ACID TARTARIC is weaker in consequence of the depreciation in the franc although the price is still nominally held at 11½d. per lb.

ALUMINA SULPHATE unchanged. 17-18% is quoted £6 2s. 6d. to £6 7s. 6d. per ton, ex warehouse.

ARSENIC remains lifeless. The nominal price is £24 10s. to £25 per ton.

BARIUM CHLORIDE has been in better demand. Price to-day is £9 10s. per ton.

CREAM OF TARTAR.—The better demand has discounted the depression in the franc and the market remains firm at £75 to £79 per ton according to quantity and make.

EPSOM SALTS unchanged.

FORMALDEHYDE is quiet but price is thought to have touched bottom. The market stands at £40 to £42 per ton.

LEAD ACETATE has been in good demand, particularly for export. Spot price is £44 15s. per ton for white and £42 10s. for brown.

LIME ACETATE is firmer, grey being quoted at £15 10s. to £16 per ton and brown about £10 per ton.

METHYL ALCOHOL.—There is no inquiry whatsoever but makers are asking higher prices. Current quotation is £48 per ton, c.i.f.

POTASSIUM CAUSTIC.—Unchanged at £29 to £30 per ton for 88-92%.

POTASSIUM CHLORATE remains very scarce, spot parcels commanding about 4½d. per lb.

POTASSIUM PERMANGANATE is in small demand at 7¾d. per lb.

POTASSIUM PRUSSIATE is firm at about 7¾d. per lb., for spot delivery.

SODIUM ACETATE is in better demand. Price has been reduced to £18 10s. to £19 per ton.

SODIUM BICHROMATE is in good request. English makers' price is unchanged.

SODIUM HYPOSULPHITE.—There is little doing. Price quoted is about £9 10s. to £9 15s. per ton for the commercial quality.

SODIUM PRUSSIATE.—A very fair business is passing at 4¼d. per lb.

SODIUM NITRITE.—A fair business is reported. Price is a little firmer at about £23 per ton.

SODIUM SULPHIDE.—The Continental makers are now lower than the English prices, but competition continues. The price for concentrated to-day is £13 10s. to £14 per ton, for crystals £8 15s. to £9 10s. per ton.

Coal Tar Products

There is little change to report in the market conditions from last week.

90% BENZOL is fairly quiet, and the price remains unchanged at 1s. 8d. to 1s. 9d. per gallon on rails.

PURE BENZOL is quoted at 1s. 10d. to 1s. 11d. per gallon on rails.

CREOSOTE OIL is firm at 5½d. to 5⅝d. per gallon on rails in the North, while the price in London is from 7d. to 7¼d. per gallon.

CRESYLIC ACID remains unchanged, at 1s. 7d. to 1s. 8d. per gallon on rails, in bulk, for the pale quality, 97/99%, while the dark quality is quoted at 1s. 5d. per gallon on rails.

SOLVENT NAPHTHA remains unchanged at 1s. 3d. to 1s. 4d. per gallon on rails.

HEAVY NAPHTHA is quoted at 1s. to 1s. 1d. per gallon on rails.

NAPHTHALENES are unchanged, the lower grades being worth from £3 to £3 15d. per ton, while the 74/76 quality is quoted at £5 to £5 10s. per ton, and 76/78 quality at £5 15s. to £6 per ton.

PITCH is dull and there are no new features to report.

Latest Oil Prices

LINSEED OIL, easier but irregular. Spot, £41, sellers; June, £40; July-August, £40 2s. 6d., after £40 had been taken; September-December sold from £39 10s. up to £40 2s. 6d., and sellers at £40 5s. COTTON OIL inactive and prices nominally unchanged. Refined common edible, £47; Bombay, crude, £39; Egyptian, crude, £42 10s.; deodorised, £49. TURPENTINE—American, spot, 67s. 6d.; and July-December, 68s. per cwt. No business was reported. FUEL OIL.—Furnace, 950 gravity, £4 2s. 6d.; bunker, 950 gravity, £3 17s. 6d.; Diesel oil, 910 gravity, £4 17s. 6d. per ton, in tanks, Thameshaven and Purfleet. Gas oil, 5¼d. per gallon, ex ocean installation. LUBRICATING OILS.—American, pale machine, £13 to £22; heavy red, £16 to £22; medium red, £15 to £18; and light red, £14 to £20. Cold test filtered cylinder, £28 to £31; filtered cylinder, £24 to £28; 600 dark cylinder, £22; and 650 dark cylinder, £23, all per ton, less 2½ per cent. discount, barrels free.

Methylated Spirit Prices

The Methylating Co., Ltd., of Kinnaird House, Pall Mall East, London, S.W.1, inform us that their prices on and after July 1, without engagement on their part, are as follows:—

In one delivery.	Industrial Methylated Spirit.		Mineralised Methylated Spirit. (Coloured Violet).	
	61 o.p.	64 o.p.	61 o.p.	64 o.p.
500 gallons and upwards	2s. 4d.	2s. 5d.	—	—
100 ,, and under 500	2s. 6d.	2s. 7d.	3s. 7d.	3s. 8d.
30 ,, ,, 100	2s. 8d.	2s. 9d.	3s. 9d.	3s. 10d.
10 ,, ,, 30	2s. 10d.	2s. 11d.	3s. 11d.	4s. 0d.

Methylated resin finish 2d. per gal. extra over the prices quoted for industrial methylated spirit. Methylated shellac finish 8d. per gal. extra over the prices quoted for industrial methylated spirit.

Terms.—Cash in one month, less 2½ per cent. Carriage paid on full *and returned empty packages*. Packages to be paid for, but will be allowed for at the same price when actually returned in good condition. No order will be accepted or executed except on the express understanding that it is charged at the prices and conditions ruling on the day of despatch of the goods.

Nitrogen Products Market

Export.—The position is unchanged, prices for July are still the same—£12 2s. 6d. in double bags and £11 10s. in single bags f.o.b. U.K. port. During the week considerable sales at these prices and some forward sales have been made at slightly higher prices in accordance with the position. The prices are getting higher as the season advances.

Home.—Prices unchanged. Small sales have been made.

Nitrate of Soda.—The market continues firm. Cargoes c.i.f. chief European ports have changed hands from £11 14s. to £11 17s. per ton. The fall clause, which the directors have stated will operate if prices are reduced later, has given the buyers confidence and large sales have been made for early delivery.

Weekly Prices of British Chemical Products

The prices and comments given below respecting British chemical products are based on direct information supplied by the British manufacturers concerned. Unless otherwise qualified, the figures quoted apply to fair quantities, net and naked at retailers' works.

General Heavy Chemicals

Acid Acetic, 40% Tech.—£21 to £23 per ton.

Acid Boric, Commercial.—Crystal, £40 per ton, Powder, £42 per ton.

Acid Hydrochloric.—3s. 9d. to 6s. per carboy d/d., according to purity, strength and locality.

Acid Nitric, 80° Tw.—£21 10s. to £27 per ton, makers' works, according to district and quality.

Acid Sulphuric.—Average National prices f.o.r. makers' works, with slight variations up and down owing to local considerations: 140° Tw., Crude Acid, 65s. per ton. 168° Tw., Arsenical, £5 10s. per ton. 168° Tw., Non-arsenical, £6 15s. per ton.

Ammonia Alkali.—£6 15s. per ton f.o.r. Special terms for contracts.

Bleaching Powder.—Spot, £10 10s. d/d; Contract, £10 d/d. 4 ton lots.

Bisulphite of Lime.—£7 10s. per ton, packages extra, returnable.

Borax, Commercial.—Crystal, £25 per ton. Powder, £26 per ton. (Packed in 2-cwt. bags, carriage paid any station in Great Britain.)

Calcium Chlorate (Solid).—£5 12s. 6d. to £5 17s. 6d. per ton d/d, carriage paid.

Copper Sulphate.—£25 to £25 10s. per ton.

Methylated Spirit 64 O.P.—Industrial, 2s. 7d. to 2s. 11d. per gall. Mineralised, 3s. 8d. to 4s. per gall., in each case according to quantity.

Nickel Sulphate.—£38 per ton d/d.

Nickel Ammonia Sulphate.—£38 per ton d/d.

Potash Caustic.—£30 to £33 per ton.

Potassium Bichromate.—5d. per lb.

Potassium Chlorate.—3¼d. per lb., ex wharf, London, in cwt. kegs.

Salammoniac.—£45 to £50 per ton d/d. Chloride of ammonia, £37 to £45 per ton. Carr. pd.

Salt Cake.—£3 15s. to £4 per ton d/d. In bulk.

Soda Caustic, Solid.—Spot lots delivered, £15 12s. 6d. to £18 per ton, according to strength; 20s. less for contracts.

Soda Crystals.—£5 to £5 5s. per ton ex railway depots or ports.

Sodium Acetate 97/98%.—£24 per ton.

Sodium Bicarbonate.—£10 10s. per ton, carr. paid.

Sodium Bichromate.—4d. per lb.

Sodium Bisulphite Powder 60/62%.—£16 to £17 per ton, according to quantity, f.o.b., 1-cwt. iron drums included.

Sodium Chlorate.—3d. per lb.

Sodium Nitrate refined 96%.—£13 5s. to £13 10s. per ton, ex Liverpool.

Sodium Nitrite 100% basis.—£27 per ton d/d.

Sodium Sulphate (Glauber Salts).—£3 12s. 6d. per ton.

Sodium Sulphide conc. solid. 60/65.—£15 per ton d/d. Contract £14 15s. Carr. pd.

Sodium Sulphide Crystals.—£9 5s. per ton d/d. Contract £9 2s. 6d. Carr. pd.

Sodium Sulphide, Pea Crystals.—£15 per ton f.o.r. London, 1-cwt. kegs included.

Coal Tar Products

Acid Carbolic Crystals.—4d. to 4¾d. per lb., according to quantity Quiet demand. Crude 60's, 1s. 4d. to 1s. 5d. per gall. Little business.

Acid Cresylic 97/99.—1s. 6d. to 1s. 7d. per gall. Little demand. Pale, 95%, 1s. 5d. per gall. Dark, 1s. 6d. to 1s. 9d. per gall. Slightly better demand.

Anthracene Paste 40%.—3d. per unit per cwt.—Nominal price. No business.

Anthracene Oil, Strained.—7d. to 8d. per gall. Unstrained, 6d. to 7d. per gall.

Benzol.—Crude 65's.—8d. to 9d. per gall., ex works in tank wagons. Standard Motor, 1s. 7½d. to 1s. 8½d. per gall., ex works in tank wagons. Pure, 1s. 11d. to 2s. per gall., ex works in tank wagons.

Toluol.—90%, 1s. 7d. to 1s. 9d. per gall. More inquiry. Pure, 1s. 11d. to 2s. per gall. Quiet.

Xylol Commercial.—2s. 3d. per gall. Pure, 3s. 3d. per gall.

Creosote.—Cresylic, 20/24%, 8d. per gall. Standard specification, middle oil, heavy, 5¾d. to 6d. per gall. Fair business.

Naphtha.—Crude, 8d. to 9d. per gall. Solvent 90/160, 1s. 5d. to 1s. 8d. per gall. Demand good. Solvent 90/190, 1s. to 1s. 4d. per gall. Fair demand.

Naphthalene Crude.—Drained Creosote Salts, £3 to £5 per ton. Market quiet. Whizzed or hot pressed, £6 to £9 per ton.

Naphthalene.—Crystals and Flaked, £10 to £11 per ton, according to districts. Very quiet.

Pitch.—Medium soft, 35s. to 42s. per ton, according to district. No business until next season. Price nominal.

Pyridine.—90/160, 19s. per gall. Heavy, 11s. 6d. to 12s. per gall. Fair business.

Intermediates and Dyes

In the following list of Intermediates delivered prices include packages except where otherwise stated.

Acetic Anhydride 95%.—1s. 7d. per lb.

Acid H.—3s. 9d. per lb. 100% basis d/d.

Acid Naphthionic.—2s. 2d. per lb. 100% basis d/d.

Acid Neville and Winther.—5s. 8d. per lb. 100% basis d/d.

Acid Salicylic, technical.—11d. to 11½d. per lb. Steady demand.

Acid Sulphanilic.—9d. per lb. 100% basis d/d.

Aluminium Chloride, anhydrous.—10d. per lb. d/d.

Aniline Oil.—7½d. per lb. naked at works.

Aniline Salts.—8d. per lb. naked at works.

Antimony Pentachloride.—1s. per lb. d/d.

Benzidine Base.—3s. 8d. per lb. 100% basis d/d.

Benzyl Chloride 95%.—1s. 1d. per lb.

p-Chlorphenol.—4s. 3d. per lb. d/d.

p-Chloraniline.—3s. per lb. 100% basis.

o-Cresol 29/31° C.—3d. per lb. Demand quiet.

m-Cresol 98/100%.—2s. 1d. per lb. Demand moderate.

p-Cresol 32/34° C.—2s. 1d. per lb. Demand moderate.

Dichloraniline.—2s. 3d. per lb.

Dichloraniline S. Acid.—2s. 3d. per lb. 100% basis.

Diethylaniline.—4s. 3d. per lb. d/d., packages extra, returnable.

Dimethylaniline.—2s. 2d. per lb. d/d. Drums extra.

Dinitrobenzene.—9d. per lb. naked at works.

Dinitrochlorbenzol.—£84 10s. per ton d/d.

Dinitrotoluene.—48/50° C. 8d. to 9d. per lb. naked at works. 66/68° C. 1s. per lb. naked at works.

Diphenylaniline.—2s. 10d. per lb. d/d.

G. Salt.—2s. 2d. per lb. 100% basis d/d.

a-Naphthol.—2s. 3d. per lb. d/d.

B-Naphthol.—1s. per lb. d/d.

a-Naphthylamine.—1s. 3½d. per lb. d/d.

B-Naphthylamine.—3s. 9d. per lb. d/d.

m-Nitraniline.—4s. 2d. per lb. d/d.

p-Nitraniline.—2s. 2d. per lb. d/d.

Nitrobenzene.—5½d. to 5¾d. per lb. naked at works.

o-Nitrochlorbenzol.—2s. 3d. per lb. 100% basis d/d.

Nitronapthalene.—10d. per lb. d/d.

p-Nitrophenol.—1s. 9d. per lb. 100% basis d/d.

p-Nitro-*o*-amido-phenol.—4s. 6d. per lb. 100% basis.

m-Phenylene Diamine.—4s. per lb. d/d.

p-Phenylene Diamine.—9s. 9d. per lb. 100% basis d/d.

R. Salt.—2s. 4d. per lb. 100% basis d/d.

Sodium Naphthionate.—2s. 2d. per lb. 100% basis d/d.

o-Toluidine.—10d. per lb.

p-Toluidine.—2s. 3d. per lb. naked at works.

m-Toluylene Diamine.—4s. per lb. d/d.

Wood Distillation Products

Acetate of Lime.—Brown £9 10s. to £10. Quiet market. Grey £15 per ton. Liquor, 9d. per gall. 32° Tw.

Acetone.—£73 per ton.

Charcoal.—£7 5s. to £8 10s. per ton, according to grade and locality.

Iron Liquor.—1s. 7d. per gall. 32° Tw. 1s. 2d. per gall. 24° Tw.

Red Liquor.—10d. to 1s. per gall. 14/15° Tw.

Wood Creosote.—2s. 9d. per gall. Unrefined.

Wood Naphtha, Miscible.—4s. 3d. per gall. 60% O.P. Solvent, 4s. 6d. per gall. 40% O.P.

Wood Tar.—£4 per ton.

Brown Sugar of Lead.—£43 per ton.

Rubber Chemicals

Antimony Sulphide.—Golden, 7½d. to 1s. 5d. per lb., according to quality. Crimson, 1s. 5d. to 1s. 7½d. per lb., according to quality.

Arsenic Sulphide, Yellow.—2s. per lb.

Barytes.—£3 10s. to £6 15s. per ton, according to quality.

Cadmium Sulphide.—4s. 4d. per lb.

Carbon Bisulphide.—£32 to £35 per ton, according to quantity.

Carbon Black.—6d. to 6¼d. per lb., ex wharf.

Carbon Tetrachloride.—£62 to £67 per ton, according to quantity, drums extra.

Chromium Oxide, Green.—1s. 4d. per lb.

Indiarubber Substitutes, White and Dark.—5½d. to 7½d. per lb.

Lamp Black.—£48 per ton, barrels free.

Lead Hyposulphite.—9d. per lb.

Lithopone, 30%.—£22 10s. per ton.

Mineral Rubber "Rubpron."—£16 to £18 per ton f.o.r. London.

Sulphur.—£10 to £12 per ton, according to quality.

Sulphur Chloride.—4d. per lb., carboys extra.

Sulphur Precip. B.P.—£56 to £65 per ton.

Thiocarbanilide.—2s. 6d. per lb.
Vermilion, Pale or Deep.—5s. 6d. per lb.
Zinc Sulphide.—1s. 1d. per lb.

Pharmaceutical and Photographic Chemicals

Acid, Acetic 80% B.P.—£40 per ton ex wharf London in glass containers.
Acid, Acetyl Salicylic.—2s. 8d. to 2s. 10d. per lb. British makers meeting foreign competition in quality and price.
Acid, Benzoic B.P.—2s. to 2s. 3d. per lb., according to quantity.
Acid, Boric B.P.—Crystal £46 per ton, Powder £50 per ton. Carriage paid any station in Great Britain.
Acid, Camphoric.—19s. to 21s. per lb.
Acid, Citric.—1s. 5d. per lb., less 5% for ton lots. Raw material dearer.
Acid, Gallic.—2s. 9d. per lb. for pure crystal, in cwt. lots.
Acid, Pyrogallic, Crystals.—6s. per lb. for 1 cwt. lots. 7s. 6d. per lb. for 7-lb. lots, according to quantity.
Acid, Salicylic.—1s. 3d. to 1s. 8d. per lb., according to quantity. Good demand.
Acid, Tannic B.P.—2s. 9d. per lb.
Acid, Tartaric.—11½d. per lb., less 5%.
Amidol.—9s. per lb., d/d.
Acetanilide.—1s. 7d. per lb. for quantities.
Amidopyrin.—13s. 9d. per lb.
Ammonium Benzoate.—3s. 3d. to 3s. 6d. per lb., according to quantity.
Ammonium Carbonate B.P.—£37 per ton. Powder, £39 per ton in 5 cwt. casks.
Atropine Sulphate.—12s. 6d. per oz. for English make.
Barbitone.—11s. 6d. per lb.
Benzonaphthol.—3s. 5d. to 4s. per lb. spot.
Bismuth Carbonate.—10s. 6d. to 12s. 6d. per lb.
Bismuth Citrage.—10s. 3d. to 12s. 3d. per lb.
Bismuth Salicylate.—9s. to 11s. per lb.
Bismuth Subnitrate.—8s. 8d. to 10s. 8d. per lb.
} Supplies of the metal are still restricted.
according to quantity.
Borax B.P.—Crystal £29, Powder £30 per ton. Carriage paid any station in Great Britain.
Bromides.—Potassium, 1s. 11d. to 2s. 1d. per lb.; sodium, 2s. 1d. to 2s. 2d. per lb.; ammonium, 2s. 4d. to 2s. 6d. per lb., all spot. British or Imported.
Calcium Lactate.—1s. 6½d. to 1s. 8d., according to quantity.
Chloral Hydrate.—3s. 6d. per lb., duty paid.
Chloroform.—2s. 5½d. to 2s. 7½d. per lb., less 2½% according to quantity.
Creosote Carbonate.—6s. 9d. per lb.
Formaldehyde.—£40 per ton, in barrels ex wharf.
Glycerophosphates.—Fair business passing. Calcium, soluble and citrate free, 7s. per lb.; iron, 8s. 9d. per lb.; magnesium, 9s. per lb.; potassium, 50%, 3s. 6d. per lb.; sodium, 60%, 2s. 6d. per lb.
Guaiacol Carbonate.—7s. to 7s. 3d. per lb.
Hexamine.—2s. 5d. to 2s. 6d. per lb. for cwt. lots.
Homatropine Hydrobromide.—30s. per oz.
Hydrastine Hydrochloride.—English make offered at 120s. per oz.
Hydrogen Peroxide (12 vols.).—1s. 8d. per gallon f.o.r. makers' works, naked.
Hydroquinone.—4s. 3d. per lb. Nominal.
Hypophosphites.—Calcium, 3s. 6d. per lb., for 28 lb. lots; potassium, 4s. 1d. per lb.; sodium, 4s. per lb.
Iron Ammonium Citrate B.P.—1s. 11d. to 2s. 3d. per lb. Green, 2s. 6d. to 2s. 11d. per lb. U.S.P., 2s. to 2s. 2d. per lb.
Magnesium Carbonate.—Light Commercial, £34 per ton net. Light pure, £46 per ton.
Magnesium Oxide.—Light Commercial, £70 per ton, less 2½%, price reduced; Heavy Commercial, reduced to £24 per ton, less 2½%; Heavy Pure, 2s. to 2s. 3d. per lb., according to quantity.
Menthol.—A.B.R. recrystallised B.P., 43s. per lb.; June delivery. Synthetic, 22s. 6d. to 27s. 6d. per lb., according to quality. English make.
Mercurials.—Red oxide, 5s. 2d. to 5s. 4d. per lb.; Corrosive sublimate, 3s. 7d. to 3s. 9d. per lb.; white precipitate, 4s. 6d. to 4s. 8d. per lb.; Calomel, 3s. 10d. to 4s. per lb.
Methyl Salicylate.—1s. 5½d. to 1s. 8d. per lb., according to quantity.
Methyl Sulphonal.—18s. to 18s. 6d. per lb.
Metol.—11s. per lb. British make.
Paraformaldehyde.—2s. for B.P. quality.
Paraldehyde.—1s. 4½d. per lb., in free bottles and cases.
Phenacetin.—4s. 3d. per lb. in cwt. lots. Slightly cheaper.
Phenazone.—6s. 3d. per lb.
Phenolphthalein.—4s. 3d. to 4s. 6d. per lb. for cwt. lots.
Potassium Bitartrate 99/100% (Cream of Tartar).—83s. per cwt., less 2½% for ton lots.
Potassium Citrate.—1s. 10d. to 2s. 2d. per lb.
Potassium Ferricyanide.—1s. 9d. per lb. Quiet.
Potassium Iodide.—16s. 8d. to 16s. 11d. per lb., according to quantity. Steady market.
Potassium Metabisulphite.—7½d. per lb., 1-cwt. kegs included, f.o.r. London.
Potassium Permanganate.—B.P. crystals, 7½d. per lb., spot.
Quinine Sulphate.—2s. 3d. to 2s. 4d. per oz., in 100 oz. tins. Steady market.
Resorcin.—4s. 5d. per lb. In fair quantities.
Saccharin.—63s. per lb. in 50 lb. lots.
Salol.—3s. 6d. per lb., for cwt. lots.
Silver Proteinate.—12s. per lb. for satisfactory product light in colour.
Sodium Benzoate, B.P.—1s. 10d. to 2s. 2d. per lb.
Sodium Citrate, B.P.C., 1911.—1s. 7d. to 1s. 11d. per lb., according to quantity. U.S.P. 1s. 10d. to 2s. 2d. per lb.
Sodium Hyposulphite, Photographic.—£14 to £15 per ton, according to quantity, d/d consignee's station in 1-cwt. kegs.
Sodium Metabisulphite Crystals.—37s. 6d. to 60s. per cwt., net cash, according to quantity.
Sodium Nitroprusside.—16s. per lb.
Sodium Potassium Tartrate (Rochelle Salt).—75s. per cwt., for ton lots and upwards.
Sodium Salicylate.—Powder, 2s. to 2s. 6d. per lb. Crystal, 2s. to 2s. 4d. per lb. Flake, 2s. 3d. per lb. Strong demand.
Sodium Sulphide, pure recrystallised.—10d. to 1s. 2d. per lb.
Sodium Sulphite, anhydrous, £27 10s. per ton, minimum 5 ton lots, according to quantity; 1-cwt. kegs included.
Sulphonal.—12s. 8d. per lb.
Thymol.—17s. per lb.

Perfumery Chemicals

Acetophenone.—9s. 6d. per lb.
Aubepine (ex Anethol).—10s. per lb.
Amyl Acetate.—3s. per lb.
Amyl Butyrate.—6s. 6d. per lb.
Amyl Salicylate.—3s. 1½d. per lb.
Anethol (M.P. 21/22° C.).—5s. per lb.
Benzyl Acetate from Chlorine-free Benzyl Alcohol.—2s. 6d. per lb.
Benzyl Alcohol free from Chlorine.—2s. 6d. per lb.
Benzaldehyde free from Chlorine.—3s. per lb.
Benzyl Benzoate.—3s. per lb.
Cinnamic Aldehyde Natural.—14s. 9d. per lb.
Coumarin.—14s. 6d. per lb.
Citronellol.—20s. per lb.
Citral.—8s. 6d. per lb.
Ethyl Cinnamate.—9s. per lb.
Ethyl Phthalate.—3s. per lb.
Eugenol.—10s. per lb.
Geraniol (Palmarosa).—28s. 6d. per lb.
Geraniol.—9s. 6d. to 18s. 6d. per lb.
Heliotropine.—6s. 3d. per lb.
Iso Eugenol.—14s. 6d. per lb.
Linalol ex Bois de Rose.—21s. per lb.
Linalyl Acetate.—20s. per lb.
Methyl Anthranilate.—10s. per lb.
Methyl Benzoate.—5s. per lb.
Musk Ambrette.—50s. per lb.
Musk Ketone.—34s. 6d. per lb.
Musk Xylol.—9s. 9d. per lb.
Nerolin.—4s. 6d. per lb.
Phenyl Ethyl Acetate.—15s. per lb.
Phenyl Ethyl Alcohol.—13s. 6d. per lb.
Rhodinol.—38s. 6d. per lb.
Safrol.—1s. 8d. per lb.
Terpineol.—1s. 10d. per lb.
Vanillin.—25s. to 25s. 6d. per lb.

Essential Oils

Almond Oil, Foreign S.P.A.—13s. 3d. per lb.
Anise Oil.—2s. 9d. per lb.
Bergamot Oil.—15s. 9d. per lb.
Bourbon Geranium Oil.—18s. per lb.
Camphor Oil.—60s. per cwt.
Cananga Oil, Java.—11s. 3d. per lb.
Cinnamon Oil, Leaf.—6d. per oz.
Cassia Oil, 80/85%.—9s. 3d. per lb.
Citronella Oil.—Java, 85/90%, 4s. 6d. per lb. Ceylon, 2s. 10d. to 3s. per lb., according to quality.
Clove Oil.—7s. 6d. per lb.
Eucalyptus Oil, 70/75%.—2s. per lb.
Lavender Oil.—French 38/40% Esters, 31s. 6d. per lb.
Lemon Oil.—4s. 9d. per lb. Advanced again.
Lemongrass Oil.—5s. 3d. per lb.
Orange Oil, Sweet.—10s. 9d. per lb.
Palma Rose Oil.—15s. 3d. per lb.
Otto of Rose Oil.—Bulgarian, 45s. per oz. Anatolian, 23s. 6d. per oz.
Palma Rosa Oil.—15s. 6d. per lb.
Peppermint Oil.—Wayne County. No good quality materials available on spot; 85s. to 102s. per lb. asked for shipment. Japanese, 16s. 3d. per lb.
Petitgrain Oil.—9s. per lb.
Sandal Wood Oil.—Mysore, 26s. per lb. Australian, 18s. 6d. per lb.

Scottish Chemical Market

The following notes on the Scottish Chemical Market are specially supplied to THE CHEMICAL AGE *by Messrs. Charles Tennant and Co., Ltd., Glasgow, and may be accepted as representing the firm's independent and impartial opinions.*

GLASGOW, *July* 3, 1925.

The heavy chemical market has been moderately active during the past week and, although quantities called for might have been larger, inquiry both for home consumption and export has been good.

English manufacturers advise reduction in prices of sodium sulphide, but they are still higher than the figures named from the continent.

Industrial Chemicals

ACID, ACETIC.—In moderate request and price unchanged. 98/100% glacial, £56 to £67 per ton according to quality and packing, c.i.f. U.K. ports; 80% pure, £40 to £42 per ton; 80% technical, £39 to £41 per ton, packed in casks c.i.f. U.K. ports.

ACID, BORIC.—Crystal, granulated or small flaked, £40 per ton; powdered, £42 per ton, packed in bags, carriage paid U.K. stations, minimum ton lots.

ACID, CARBOLIC, ICE CRYSTALS.—In little demand and price unchanged at about 4¼d. per lb. delivered.

ACID, CITRIC, B.P. CRYSTALS.—Spot lots now quoted 1s. 4¾d. per lb. less 5% ex store. Offered for prompt shipment from the continent at 1s. 4½d. per lb., less 5% ex wharf.

ACID, FORMIC 85%.—Unchanged at about £49 10s. per ton, ex store. Offered for prompt shipment from the continent at £48 per ton, c.i.f. U.K. ports.

ACID, HYDROCHLORIC.—In little demand. Price 6s. 6d. per carboy ex works.

ACID, NITRIC 80%.—Usual steady demand quoted £23 15s. per ton, ex station, full truck loads.

ACID, OXALIC 98/100%.—Offered for prompt shipment from the *continent at about 3¼d. per lb., ex wharf. Spot lots unchanged* at about 3¾d. per lb., ex store.

ACID, SULPHURIC.—144°, £3 12s. 6d. per ton; 168°, £7 per ton, ex works, full truck loads. Dearsenicated quality, 20s. per ton more.

ACID, TARTARIC, B.P. CRYSTALS.—In good demand and price advanced 1s. 1d. per lb., less 5%, ex store. Offered for prompt shipment at about 1s. 0½d. per lb., less 5%, ex wharf.

ALUMINA, SULPHATE, 17/18% IRON FREE.—Spot lots quoted £6 10s. per ton, ex store. Offered for prompt shipment from the continent at about £6 5s. per ton, c.i.f. U.K. ports.

ALUM, LUMP POTASH.—Offered from the continent at about £8 5s. per ton, c.i.f. U.K. ports. Spot material quoted £9 7s. 6d. per ton, ex store. Crystal, powdered, about £7 15s. per ton, c.i.f. U.K. ports.

AMMONIA, ANHYDROUS.—Usual steady demand and price unchanged. About 1s. 4½d. per lb. ex station, containers extra and returnable.

AMMONIA, CARBONATE.—Lump, £37 per ton; powdered, £39 per ton, packed in 5 cwt. casks, delivered U.K. ports.

AMMONIA, LIQUID 880°.—In steady demand. Unchanged at 2½d. to 3d. per lb. delivered, according to quantities.

AMMONIA, MURIATE.—Grey galvaniser's crystals quoted £28 per ton, ex station; offered from the continent at about £24 per ton, c.i.f. U.K. ports; fine white crystals quoted £19 10s. per ton, c.i.f. U.K. ports.

ARSENIC, REFINED WHITE CORNISH.—About £25 per ton, ex wharf, early delivery. Spot lots quoted £26 per ton, ex store. Foreign arsenic quoted £23 5s. per ton, c.i.f. U.K. ports.

BARIUM, CARBONATE 98/100%.—Offered from the continent at £7 15s. per ton, c.i.f. U.K. ports, prompt shipment.

BARIUM CHLORIDE 98/100%.—English material quoted £10 5s. per ton, ex store; crystal offered from the continent at £8 5s. per ton, c.i.f. U.K. ports.

BARYTES.—English material unchanged at £5 5s. per ton, ex works; continental quoted £5 per ton c.i.f. U.K. ports.

BLEACHING POWDER.—Spot lots quoted £10 10s. per ton, ex station; contracts 20s. per ton less.

BORAX.—Granulated, £24 10s. per ton; crystals, £25 per ton; powdered, £26 per ton, carriage paid U.K. stations, minimum ton lots.

CALCIUM CHLORIDE.—In good demand and price unchanged at £5 12s. 6d. to £5 17s. 6d. per ton, carriage paid for English material; continental quoted about £3 15s. per ton, c.i.f. U.K. ports.

COPPERAS, GREEN.—Unchanged at about £3 5s. per ton, ex works, packed in casks free.

COPPER, SULPHATE.—Unchanged at about £24 10s. per ton, f.o.b. U.K. ports for export; spot material available at £23 10s. per ton, ex store.

FORMALDEHYDE 40%.—Quoted £40 10s. per ton, ex store, spot delivery. Offered for prompt shipment at about £39 per ton, c.i.f. U.K. ports.

GLAUBER SALTS.—English material quoted £4 per ton ex store. Continental on offer at about £3 2s. 6d. per ton c.i.f. U.K. ports.

LEAD, RED.—Imported material unchanged at about £42 to £42 10s. per ton, ex store. Offered from the continent at about £39 10s. per ton, c.i.f. U.K. ports.

LEAD, WHITE.—Quoted £43 per ton, ex store, spot delivery.

LEAD ACETATE.—White crystals quoted £44 10s. per ton, spot delivery. Brown quality, £43 per ton, ex store. White crystals on offer from the continent at £43 15s. per ton, c.i.f. U.K. ports. Brown about £38 per ton, c.i.f. U.K. ports.

LEAD NITRATE.—In moderate demand. Quoted £42 per ton, ex station or f.o.b.

MAGNESITE, GROUND CALCINED.—Usual steady demand and prices unchanged at about £8 per ton, ex station.

MAGNESIUM CHLORIDE.—Offered for prompt shipment at £5 per ton, c.i.f. U.K. ports. Some spot material still available at below this figure.

POTASH CAUSTIC, 88/92%.—Unchanged at about £29 per ton, ex wharf, prompt shipment from the continent. Spot material available at about £30 10s. per ton, ex store.

POTASSIUM BICHROMATE.—Price for home consumption 5d. per lb., delivered.

POTASSIUM CARBONATE, 96/98%.—Quoted £25 5s. per ton, c.i.f. U.K. ports. Spot material on offer at £26 per ton, ex store.

POTASSIUM CHLORATE.—Still scarce for early delivery. Some available at about 3¾d. per lb., c.i.f. U.K. ports. Spot material quoted 4d. per lb., ex store.

POTASSIUM NITRATE, SALTPETRE.—Refined granulated, 99%, quoted at about £28 per ton, ex store. Quoted £24 10s. per ton, c.i.f. U.K. ports for prompt shipment from the continent.

POTASSIUM PERMANGANATE, B.P. CRYSTALS.—On offer at 7½d. per lb., ex store. Offered for prompt shipment from the *continent at about 7¼d. per lb., ex wharf.*

POTASSIUM PRUSSIATE, YELLOW.—In little demand. Quoted 7d. to 7¼d. per lb., ex store.

SODA, CAUSTIC.—76/77%, £18 per ton; 70/72%, £16 12s. 6d. per ton. Broken, 60%, £17 2s. 6d. per ton. Powdered, 98/99%, £21 7s. 6d. per ton. All carriage paid U.K. stations, spot delivery. Contracts, 20s. per ton less.

SODIUM ACETATE.—Still cheaper quotations from the continent. Now quoted £17 15s. per ton, c.i.f. U.K. ports. Spot material available at £20 10s. per ton, ex store.

SODIUM BICARBONATE.—Refined recrystallised quality, £10 10s. per ton, ex quay or station. M.W. quality, 30s. per ton less.

SODIUM CARBONATE.—Soda crystals, £5 to £5 5s. per ton, ex quay or station; powdered or pea quality, £1 7s. 6d. per ton more; alkali, 58%, £8 12s. 3d. per ton, ex quay or station.

SODIUM HYPOSULPHITE.—Slightly higher quotations from the continent. Now quoted £9 per ton, c.i.f. U.K. ports. English material about £9 10s., ex station. Pea crystals of English manufacture, £14 per ton, ex station.

SODIUM NITRATE.—Quoted £13 per ton, ex store. 96/98% refined quality, 7s. 6d. per ton extra.

SODIUM NITRITE, 100%.—Quoted £24 per ton, ex store. Offered from the continent at about £22 5s. per ton, c.i.f. U.K. ports.

SODIUM PRUSSIATE, YELLOW.—In little demand. Nominally 4d. per lb., ex store, but could be obtained for less.

SODIUM SULPHATE, SALTCAKE.—Price for home consumption, £3 10s. per ton, f.o.r. works. Good inquiry for export and higher prices obtainable.

SODIUM SULPHIDE.—English manufacturers advise reduction in price of 35s. per ton for solid and broken, and 12s. 6d. per ton for crystals. Solid, 60/62%, now £13 per ton; broken, £14 per ton; flake, £15 per ton; crystal, £8 10s. per ton. Carriage paid U.K. stations, minimum, 4 ton lots, with slight reductions for contracts to the end of the year. 60/62% solid offered from the continent at £10 15s. per ton, c.i.f. U.K. ports. Broken, £1 per ton more. 30/32% crystals, £7 15s. per ton, c.i.f. U.K. ports.

SULPHUR.—Flowers, £9 10s. per ton; roll, £8 10s. per ton; rock, £8 7s. 6d. per ton; ground, £8 5s. per ton—ex store, prices nominal.

ZINC CHLORIDE, 98/100%.—Quoted from the continent at £24 5s. per ton, c.i.f. U.K. ports. 97/98% of English manufacture on offer at £25 per ton, f.o.b. U.K. ports.

ZINC SULPHATE.—Commercial crystals on offer from the continent at about £12 per ton, c.i.f. U.K. ports.

NOTE.—The above prices are for bulk business and are not to be taken as applicable to small parcels.

Coal Tar Intermediates and Wood Distillation Products

METANITRANILINE.—Fair home inquiries. 3s. 6d. per lb.

ALPHANAPHTHYLAMINE.—Small home inquiries. 1s. 3d. per lb.

BETA NAPHTHYLAMINE.—Small home inquiries. 4s. per lb.

DICHLORBENZINE.—Small export inquiries. 8s. per lb.

ACETANILIDE.—Fair home inquiries. 1s. 6d. per lb.

Manchester Chemical Market

[From Our Own Correspondent.]

Manchester, July 3, 1925.

Chemical trade conditions here have shown little change since last report. Business continues to be anything but brisk, although a moderate number of inquiries are being received. Tuesday's decision to close down mills in the American section of the Lancashire cotton industry on one day a week is not likely to have much effect on the consumption of chemicals in the textile trade, for it has already been at a low ebb for some considerable time. In other directions the demand for chemicals is quiet, both on home and export account.

Heavy Chemicals

Saltcake is in limited demand for both branches of trade, with values on the easy side at round £3 12s. 6d. per ton. Glauber salts are also quiet and weak at £3 12s. 6d. per ton. Bleaching powder is in comparatively small demand, although there is no change in prices to be reported, current quotations being £9 10s. per ton. Hyposulphite of soda meets with a quietly steady demand at £13 10s. to £13 15s. per ton for photographic crystals and £9 for commercial. Phosphate of soda is still on offer at £12 10s. to £12 15s. without attracting much attention from buyers. Caustic soda is in fair request both for home consumption and for shipment, and values are maintained at from £15 12s. 6d. per ton for 60 per cent. quality to £18 for 76–77 per cent. Acetate of soda is quiet and easy at round £19 per ton. Sulphide of sodium is in small demand at £12 15s. to £13 per ton for 60–65 per cent. concentrated solid and £9 5s. per ton for crystals. Soda crystals are in fair request and prices are steady at £5 5s. per ton. Chlorate of soda is maintained at 3d. per lb. and a quietly steady volume of business is being done. Prussiate of soda is rather quiet, but unchanged from last week at about 4d. per lb. Alkali is steady and in moderate inquiry at £6 15s. per ton. Bicarbonate of soda is still quoted at £10 10s. per ton.

There is only a quiet demand both for carbonate of potash and for caustic, although values are steadier again; carbonate is quoted at £24 10s. and caustic at about £29. Permanganate of potash is fairly steady at 6¼d. per lb. for commercial quality and 8d. for pharmaceutical, but business in this material has been rather dull. Chlorate of potash is well held at the level of 3¾d. per lb. and a quietly steady demand is being met with. Bichromate of potash is in moderate request at round 5d. per lb. Prussiate of potash is quiet, but unchanged in value at 7d. per lb.

No improvement in arsenic can yet be recorded; prices, though weak, are not much altered from last week's range of £25 to £26 per ton in Manchester. Sulphate of copper keeps fairly steady at £24 10s. per ton, though demand is still restricted. Commercial Epsom salts attracts only a limited amount of attention at £4 5s. to £4 10s. per ton; magnesium sulphate, B.P. quality, is maintained at £6. Acetate of lime is in small request at £14 10s. to £15 per ton for grey material and £8 10s. to £9 for brown. Acetate of lead is quiet but steady at £45 per ton for white and round £39 for brown. Nitrate of lead is unchanged either in position or value at £41 per ton.

Acids and Tar Products

Citric acid keeps steady and in fair inquiry at 1s. 4½d. per lb. Tartaric acid is only moderately active at round 1s. per lb. Oxalic acid is rather quiet at 3¾d. per lb. Acetic acid is fairly steady at £38 to £39 per ton for 80 per cent. commercial quality and £67 for glacial.

The absence of any important business in coal-tar products still characterises the market. Pitch is quiet and nominal at £40 per ton. Carbolic acid is dull at 4½d. per lb. for crystals and 1s. 6d. per gallon for crude. Naphthalenes are easy and in small demand at £13 10s. for refined and £4 per ton and upwards for crude. Solvent naphtha is quoted at round 1s. 5d. and creosote oil at 6d. per gallon, but not much is being done in either.

American Market Movements

(From *Drug and Chemical Markets.*)

Industrial chemical demand continues along routine lines with makers quoting unvarying prices on the entire list. Imported products continue at unchanged prices. Distributors advance both pure and 90 per cent. benzene 1 c. gallon. Other light oil distillates very strong but unchanged. Pyridine recovers sharply, Intermediates quiet. Diethylaniline and diethylamine lower.

Activity in fine chemicals is routine and generally considered fair for the time of year. Little change is seen in prices, with the exception of quicksilver and cod liver oil, which continue to advance. Demand for citric acid is good.

Fixed oil market continues to gain in strength although consuming buying is of small proportions. Imported products are higher for import than on spot for most products.

Colloidal Graphite as a Lubricant

It has been found possible to produce a synthetic graphite of great purity by means of Dr. Acheson's process, according to the *Manchester Guardian Commercial.*

Coal or coke are subjected to a temperature of about 7,500 deg. F., and after evaporating all impurities, pure carbon in the form of graphite is obtained. By the process of deflocculation and a combined mechanical treatment a powder is produced in which the particles of graphite are reduced to almost molecular dimensions. Owing to the minuteness of the particles the graphite readily remains in diffusion in any neutral medium such as water or oil. It will pass through a filter paper, and the oil thus becomes the carrier of the graphite to the surfaces to be lubricated. The resultant "graphoid surface" renders the metal practically free from friction; it becomes self-lubricating, and the wear is restricted to the graphite itself, which is constantly replaced by fresh supplies of deflocculated Acheson graphite.

The Chemists' Year Book, 1925

The tenth edition of this year book (Sherratt and Hughes, 21s.) has been published, and contains the maximum information in the minimum of space. Edited by Dr. F. W. Atack, it will be equally valuable to the technical chemist as to those engaged in the commercial application of the science, for not only does it include almost all the data which the former is likely to require but also many articles dealing with chemical industries. The book has been brought up-to-date, and the tables giving the general properties of organic compounds have been rewritten and enlarged. Physico-chemical and mathematical constants make up a large part of the book, while there are sections dealing with qualitative, quantitative and volumetric analysis, as well as with fuels, leather, paper, tobacco, and many other practical subjects. In addition there are chapters on the law of chemical patents, the history of the science, and chemical publications and journals.

The Industrial League

At an extraordinary general meeting of the Industrial League and Council, Sir Ernest Benn presiding, the amalgamation of that body with the National Alliance of Employers and Employed was unanimously agreed upon. The agreement of the National Alliance had already been registered at its annual general meeting. It is announced that, with the exception of the necessary formal ratification and the settlement of minor details, the fusion is now complete. The programme of the new organisation will be a complete combination under a single control of all branches of activity hitherto pursued by both the old societies. New and far-reaching developments are in contemplation.

Chemical Synonyms and Trade Names

The second edition of the dictionary of this title by William Gardner (Crosby, Lockwood and Son, 30s.) has been brought up to date by the addition of a supplement of 56 pages. For the convenience of purchasers of the first edition this supplement has been issued separately as a companion volume, in order that the dictionary may be kept up to date, and is priced at 7s. 6d. The object of this book is to supply a ready reference to the synonyms and trade names under which chemicals and materials are sold and discussed, and it now contains over 16,000 definitions.

Company News

ANACONDA COPPER CO.—A dividend of 75 cents is payable on August 24.

RECKITT AND SONS.—The directors have declared an interim dividend of 9d. per share, less tax, on the ordinary shares for the quarter ending June 30.

ALLEN-LIVERSIDGE, LTD.—A final dividend of 7½ per cent., less tax, is proposed, making, with the interim dividend, 12½ per cent. for the year ended April 30 last.

NEW TRANSVAAL CHEMICAL CO.—An interim dividend for the half year ended December 31, 1924, of 3 per cent., less tax, is announced on the cumulative first preference shares and 4 per cent., less tax, on the cumulative A preference shares.

ROSARIO NITRATE CO., LTD.—For the year 1924 the directors report a profit on sales of nitrate and iodine of £95,822, provision for amortisation of grounds and depreciation of machinery and plant required £30,678, leaving £65,145, which, added to the surplus on realisation of investments and sundry receipts, £5,481, makes £70,626. British income-tax and corporation profits tax, Chilean income-tax, and London charges absorbed £20,071, leaving a net profit of £50,555, making, with £29,179 brought forward, £79,734. An interim dividend of 5 per cent., less tax, was paid on November 18, 1924, and the directors recommend a final dividend of 6 per cent., less tax, at 4s. 6d. in the £, leaving to be carried forward £28,584.

BRITISH DYESTUFFS CORPORATION, LTD.—The sixth ordinary general meeting will be held at Manchester on July 8. The meeting is called in order to comply with the requirements of the Companies (Consolidation) Act, 1908, and the company's articles of association whereby it must be held within a period of not more than fifteen months after the holding of the last ordinary general meeting. It has not been possible in the time available to prepare and submit to the shareholders the accounts and the scheme of reconstruction referred to in the circular issued to shareholders on May 7 last, consequently the directors propose to adjourn the meeting. Notice of the adjourned meeting will be given when the accounts and the reconstruction scheme are ready.

MOND NICKEL CO.—The report to April 30 last states there is a balance to the credit of profit and loss account before deducting interim dividends of £337,790. The directors recommend the payment of a dividend of 1s. 6d. on the ordinary shares, less income tax, making a total distribution of 2s. 6d. for the year ended April 30 last, or 12½ per cent., and 3½ per cent. final dividend on the 7 per cent. cumulative and non-cumulative preference shares. A resolution is to be submitted at the annual general meeting which is to be held at Caxton Hall, Caxton Street, Westminster, S.W., on July 9, at 12 noon, to increase the authorised capital by the creation of 1,500,000 7 per cent. cumulative "A" preference shares. The directors propose to issue 1,250,000 of these shares and to make an issue of a new 5½ per cent. debenture stock to the amount of £1,000,000. The proceeds of these issues will be applied to redeem the whole of the outstanding £1,300,000 8 per cent. mortgage debenture stock, to repay loans and to provide for extensions and further working capital.

New Chemical Trade Marks

Applications for Registration

This list has been specially compiled for us by Mr. H. T. P. Gee, Patent Agent, Staple House, 51 and 52, Chancery Lane, London, W.C.2, from whom further information may be obtained, and to whom we have arranged to refer any inquiries relating to Patents, Trade Marks and Designs.

Opposition to the Registration of the following Trade Marks can be lodged up to August 1, 1925.

"TANCOL."

457,001. Class 1. Anti-corrosives. William Howard Hill, trading as W. H. Hill and Co., 73, Leadenhall Street, London, E.C.3, Manufacturer. (By consent). March 9, 1925.

"CYKLORAN."

457,531. Class 1. Chemical substances used in manufactures. The Hexoran Co., Ltd., 68, Major Street, Manchester, manufacturers. March 25, 1925.

"DUROIL."

459,217. Class 1. Anti-corrosives. William Briggs and Sons, Ltd., 5, Cowgate, Dundee, Scotland, chemical manufacturers. May 23, 1925.

"GLAURADIX."

458,460. Class 3. Chemical substances for use in dentistry. British Dyestuffs Corporation, Ltd., 70, Spring Gardens, Manchester, manufacturers of dyestuffs and chemicals. (To be Associated. Sect. 24.) April 29, 1925.

"ARSENOSTAB."

458,620. Class 3. Chemical substances prepared for use in medicine and pharmacy. Boot's Pure Drug Co., Ltd., 37, Station Street, Nottingham, merchants. (To be associated. Sect. 24.) May 5, 1925.

Chemical Trade Inquiries

The following inquiries, abstracted from the "Board of Trade Journal," have been received at the Department of Overseas Trade (Development and Intelligence), 35, Old Queen Street, London, S.W.1. British firms may obtain the names and addresses of the inquirers by applying to the Department (quoting the reference number and country), except where otherwise stated.

INDUSTRIAL AND PHARMACEUTICAL CHEMICALS.—A firm in Milan desires to represent British manufacturers of the above, particularly prussiates of soda and potash, arsenic 99 per cent., cobalt oxide black, carbolic acid crystals 30-41 deg., aniline by-products, pyridine bases. Corresponds in English. (Reference No. 14.)

TURPENTINE.—Tenders invited for supply of turpentine. Forms from Controller of Supplies, H.M. Office of Works, King Charles Street, Westminster, S.W.1, to be returned by July 10.

SULPHURIC ACID, ETC.—Tenders invited for supply of cement, sulphuric acid, paints, oils, and lime (hand picked) by Stockton-on-Tees Town Council. Forms obtainable from the Manager, Corporation Gasworks.

ESSENTIAL OILS AND RAW MATERIALS.—An agent at Leipzig wishes to represent British manufacturers of essential oils, and merchants and exporters of raw materials for chemical products. Correspondence in English. (Reference No. 775.)

TAR AND TAR SPREADING MACHINES.—A firm of commission agents in Copenhagen are desirous of getting into touch with British manufacturers of automatic tar-spreading machines and of exporters of tar and similar road-making materials. (Reference No. 768.)

Tariff Changes

BELGIUM.—Anhydrous carbonate of soda (Solvay soda in powder) may only be exported under licence.

NETHERLANDS.—The following goods will be subject to import duties, as from July 1: Reservoirs, vats, containers, etc., for chemical processes, not intended for use with power appliances, 5 per cent., *ad valorem*; celluloid, 5 per cent. *ad valorem*; chloroform, 8·35 florins per kilog.; vegetable oils, fatty acids of all kinds, also articles which consist of more than 50 per cent. of the foregoing, provided these products are not liquid at 15° Celsius, with the exception of printing inks and of ethereal oils, vulcanised oils, Turkey red oil, and other sulphonated oils, and of articles consisting of more than 50 per cent. thereof, 0·55 florins per 100 kilogs; Vanilline, 5 per cent. *ad valorem*; colours prepared in oils, including putty and similar goods, also liquid lacquers, cements, varnishes, siccatives, provided such products do not contain more than 50 per cent. of oil; and except coloured or not coloured printing inks, 5 per cent. *ad valorem*; Soap—(1) soft soap (so called green or yellow soap) (florins) 1; (2) hard soap, including all solid matter consisting of more than 50 per cent. of soap; perfumed and transparent soap (florins) 4; not perfumed (florins) 2, all per 100 kilogs.

ITALY.—Zinc ingots for the manufacture of zinc oxide may be temporarily imported duty free.

LITHUANIA.—The Board of Trade reports the receipt of sections of the new tariff dealing with chemicals, pharmaceutical products, perfumery, soaps, dyes, metallic ores, etc., but no particulars are given. Details may be obtained from the D.O.T., 35, Old Queen Street, S.W.1.

ROUMANIA.—Importers of pharmaceutical products are now required to submit selling prices for approval by the Ministry of Health. The export of rapeseed oil is now authorised with permit.

Commercial Intelligence

The following are taken from printed reports, but we cannot be responsible for any errors that may occur.

County Court Judgments

[*NOTE.—The publication of extracts from the "Registry of County Court Judgments" does not imply inability to pay on the part of the persons named. Many of the judgments may have been settled between the parties or paid. Registered judgments are not necessarily for debts. They may be for damages or otherwise, and the result of bona-fide contested actions. But the Registry makes no distinction of the cases. Judgments are not returned to the Registry if satisfied in the Court books within twenty-one days. When a debtor has made arrangements with his creditors we do not report subsequent County Court judgments against him.*]

FLOREY, Hartley, 18, Bevis Marks, E.C., chemical merchant. (C.C., 4/7/25.) £74 3s. 6d. May 26.

HEY, Mr. J. (trading as CARBO CHEMICAL CO.), Carbo Works, Hardfield Street, Heywood, manufacturing chemist. (C.C., 4/7/25.) £10 10s. 3d. May 12.

London Gazette, &c.

Company Winding Up Voluntarily

THIEL ROGERS AND CO., LTD. (C.W.U.V., 4/7/25.) S. C. Dawe, 138, Leadenhall Street, London, E.C.3, appointed liquidator, June 22. Meeting of creditors, Winchester House, Old Broad Street, London, E.C., on Thursday, July 9, at 12.30 p.m.

Bankruptcy Information

BOWEN, Evan Morgan, Penhydd, Blundell Avenue, Porthcawl, Glamorgan, chemical engineer. (R.O., 4/7/25.) Receiving order, June 22. Creditor's petition.

Partnership Dissolved

OURY, MILLAR AND CO. (Augustus Bruce STARKE Joseph Patrick MADDEN, and Sydney John OURY), gelatine and glue merchants, 9, Mincing Lane, by mutual consent so far as regards A. B. Starke, who retires from the firm, as from March 31, 1925. Debts received or paid by J. P. Madden and S. J. Oury, by whom the business will be continued.

Receivership

THIEL ROGERS AND CO., LTD. (R., 4/7/25.) A. T. Wagstaff, F.L.A.A., of 20, Finsbury Square, E.C., was appointed receiver on June 22, under powers contained in debentures dated February 17, March 7, and May 27, 1925.

New Companies Registered

COLLINS AND PARTNERS, LTD., "Shamrock Works," Dumballs Road, Cardiff. Oil refiners and blenders, soap, grease, tallow and candle manufacturers and dealers, paint and colour manufacturers and grinders, chemical manufacturers, oil and colourmen, etc. Nominal capital, £500 in £1 shares.

GROSE AND STOCKER, LTD. Importers, exporters, and manufacturers of and dealers in china clay and stone, ball clay, whiting stone, oxides, lead, tin and minerals of all kinds, chemicals, dyes, paints, pigments, etc. Nominal capital, £60,000 in £1 shares. Solicitors: Slater, Heelis and Co., 71, Princess Street, Manchester.

HEDLEY-THORNTON CORPORATION, LTD., 3, Staple Inn, London, W.C.1. Analytical and manufacturing chemists, wholesale druggists, drug grinders, metallurgists, etc. Nominal capital, £100 in 1s. shares.

OLIVE OIL, LTD., 67, Lord Street, Liverpool. Dealers in and importers and exporters of produce of all kinds, in particular olive oil; agents and dealers for the sale and purchase of chemical dyes, alkalis, etc. Nominal capital, £200 in £1 shares.

PARROTT'S, LTD., 29, North Street, Bishop Stortford. Manufacturing, wholesale and retail pharmaceutical and analytical chemists and druggists, etc. Nominal capital, £100 in £1 shares.

PERMANENT ENAMEL AND METAL WORKERS CO., LTD., West Africa House, Water Lane, Liverpool. Chemists, drysalters, oil and colourmen, importers and manufacturers of and dealers in chemical and industrial and other preparations and articles, compounds, cements, oils, paints, pigments, etc. Nominal capital, £2,000 in 1,000 non-cumulative 10 per cent. preference shares of £1 each and 20,000 ordinary shares of 1s. each.

VAUXHALL CHEMICAL CO., LTD., 20, Buckingham Street, Strand, London. Manufacturers, importers, exporters, shippers, agents, contractors for all kinds of chemicals and chemical compounds, acids, etc. Nominal capital, £1,000 in £1 shares.

Germany's Tar Industry

THE Department of Overseas Trade learns that, according to the *Deutsche Bergwerks Zeitung*, the German tar market is dull. There is little demand for raw tar as the sale possibilities of pitch are too uncertain. In the Ruhr district a month's production of pitch has been put on stock and, since the export of pitch is always less during the summer, stocks will certainly increase.

The export of impregnating oil is progressing at reasonable prices, whereas the impregnating oil business at home is more or less at a standstill since the railways are still holding back with orders. The utilisation of German tar oils as heating oil is making good progress, whereas the inland tar oil as machine oil for Diesel engines is in most cases superseded by the foreign gas oil since the motor factories prefer the gas oil from America and Poland to the German tar oil. The naphthalene business is beginning to revive a little, but the monthly output is not yet taken up by consumers. Anthracene used in the manufacture of fast dyes is taken up to the extent of its production. Street tar is in great demand, whereas tar for building material has fallen off. Pyridine bases for making spirits undrinkable are very much in demand.

The Calderwood Process

THE problem of safety in industrial processes is one which is receiving a great deal of attention at present, and the issue of a booklet on "Calderwood's Patent Process" for the boiling of oil, by the Aluminium Plant and Vessel Company, Wandsworth, S.W., is a contribution to this subject. The process has been worked out on a large practical scale by those engaged in the preparation of varnish and enamel oils, with the object of obtaining a better commercial product at a lower cost and of avoiding the danger of fire attendant upon boiling in open pots. The principal difficulty met with in producing varnish by the ordinary methods is the exclusion of the atmosphere and the prevention of the formation of fatty acids. The acrid fumes evolved have to be conducted away, a costly process, and they are very inflammable. The main principle of the Calderwood Patent Process is the total exclusion of the atmosphere from the boiling oil, resulting in a product which owes all its thickening to polymerisation and none to oxidation, and preserves its colour to the uttermost. It is claimed that large economies in labour and fuel consumption, and also in the elimination of losses by evaporation, will be effected by the use of this process.

German Sulphate of Ammonia Production

THE Deutsche Ammoniak Verkaufs Vereinung of Bochum, reporting on its activity in the ten months extending from the beginning of June, 1924, to the close of March, 1925, states that the production of sulphate of ammonia by the associated works amounted to 239,240 tons and the sales reached 243,911 tons, the difference being accounted for by the deliveries from stocks. No difficulties were experienced during the year in obtaining supplies of sulphuric acid, and as a result of a combination of interests the association succeeded in securing a substantial reduction in price from the sulphuric acid works. The price, however, is still 50 per cent. more than the 1913 level, whereas the sale price of sulphate of ammonia is less than in the pre-war period. Prospects for the present year are regarded as favourable, and it is calculated from the sales already concluded that the consumption of nitrogen fertilisers will surpass that in 1923-24 by about 40 per cent. This expansion has been greatly contributed to by the fact that the Nitrogen Syndicate has reduced its prices to less than the level of the world market prices and also to a lower level than in 1913.